HONOURS REVIEW

Common Sense

Guided by common sense, groups are often smarter than individuals. Granted, there are people endowed with above average intelligence who may do exceptionally well alone, but together we seem to fare better at solving a surprisingly large and varied number of problems.* The so-called *wisdom of the crowd* was first famously demonstrated by the notorious Francis Galton, who asked nearly a thousand people to estimate the weight of an ox at an early 20th century country fair. The median was accurate within 1% of the actual weight, and the individual estimates… quite far off. Similar results have been confirmed experimentally in recent times.

For a group to be smart, it should be autonomous, decentralized and cognitively diverse. It's common sense that we have always strived for that to be qualities of the *Honours Review* editorial board. Common sense also tells us that after three years since the publication of our first issue, it is time for a new team to take the lead. So we proudly introduce them with this issue – the first for them, the last for us. Goodbye, and welcome!

Crowds are not always wise though, and often fail at reasoning and making decisions conducive to human well-being. Read more about it in our interview with the journalist Dave Rubin.

APR

Lessons from the Romans

How to Prevent Slave Upheavals

In the first century B.C., one third of the six million people that lived in Roman Italy and Sicily were slaves (1). Given their position in the hierarchical Roman society, they were forced to live under severe conditions and were subjected to cruel treatment such as whipping, which used to be a common way to enforce "discipline". Beyond such measures, slaves' legs were broken, hands were cut off, and they were even hurled from the 25 meters tall Tarpeian Rock. Taking into consideration such harsh conditions together with the high number of the enslaved, one might assume that there would have been frequent rebellions. That has not been the case however. In fact, only three major slave rebellions (the Slave Wars) happened in Roman Italy, all within a period of 70 years (140-70 B.C.). This is remarkable given that the Roman Empire existed for over a thousand years and that slavery occurred throughout that period.

Karl J. Beloch (1886): 2 million **slaves** in a population of 5.5 million. Peter Brunt (1971): 3 million/7.5 million. Keith Hopkins (1978): 2 million/6 million. Walter Scheidel (2013): 1-1.5 million/6 million. Keith Bradley (1984): in the third century B.C. Roman Italy became a slave society.

We can put this into perspective by considering other major slave societies. Roman Italy constituted one of the five biggest **slave societies** in world history, the other four being ancient Greece (with all of its overseas settlements), early modern Brazil, the West Indian Islands, and the southern states of the United States of America (1). Whereas Rome was only confronted with three slave rebellions, eleven slave rebellions took place in the U.S. in the first half of the 19th century alone, while in the Spanish colony of Cuba, slaves rebelled twelve times. In 1804, an uprising of slaves in the French colony of Saint-Domingue even led to the birth of a slave state: Haiti. This article will investigate how the Romans achieved to minimize the incentives for revolts, discussing what it meant to be a Roman slave, explaining the factors leading to the three Slave Wars, and finally illustrating how the lessons learned from those rebellions allowed the Romans to effectively prevent any further uprisings.

Caught in extremes

The Greek historian Plutarch (46-120 A.D.) wrote about how the politician Tiberius Gracchus (169-133 B.C.) "was passing through Tuscany on his way to Numantia, and observed the dearth of inhabitants in the country, and those who tilled its soil or tended its flocks there were barbarian slaves" (2). This quotation illustrates the traditional image of Roman slavery, namely that most of the two million slaves worked in the countryside. However, recent archaeological evidence shows that this view is not correct, and that Roman slavery was in fact largely an urban phenomenon (3). Consequently, the slaves in Roman Italy had various occupations, varying from working in agriculture and construction industry, to teaching children of the Roman senators and taking care of business and administration.

Urban slaves lived better lives than rural slaves, who sometimes were forced to live in underground prisons with small and narrow windows high above the ground. Additionally to the better housing conditions, urban slaves also had better access to food, and sometimes even subtle ways to resist their masters' authority. Despite all this seeming privilage, they were still tightly suppressed. The famous politician Cicero (106-43 B.C.) once said that "those who keep subjects in check by force of course have to employ severity (4)." Punishment in Roman times was mostly physical and as illustrated by Cicero, sometimes even excessively brutal.

A slaveholding society is a society in which people own slaves. A **slave society** is one where slaves make up 20 percent or more of the total population and play an important role in economic production. A slave society is by definition a slaveholding society, but a slaveholding society is not always a slave society. (1)

> "Once a slave was manumitted, he received civil rights and was very likely to gain higher social status."
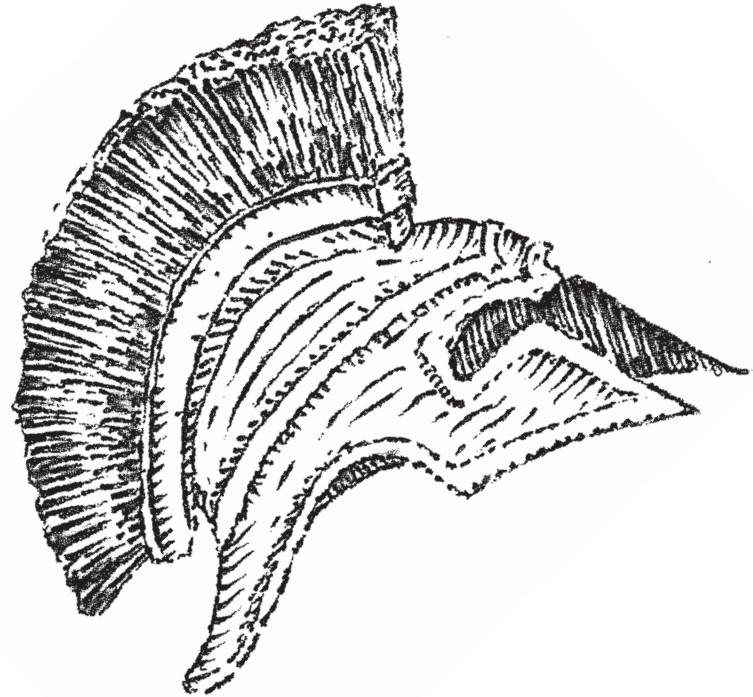
In the U.S. the masters intervened on all levels of the slaves' lives, and lashing was the most harsh form of punishment next to a death sentence. According to the law, slaves were non-existent. White people also tried to prove that the black slaves were inferior by using Biblical and scientific evidence.

Despite their masters' cruelty, there was light at the end of the tunnel for the slaves. A major difference between Roman and, for example, **early modern American slavery**, was the rate of manumission (freeing slaves). In the U.S., manumission was subject to many legal restraints. In Rome, however, the law not only allowed the act of manumitting slaves as early as by the Twelve Tables, but it was also a common practice to do so. It is said the Roman dictator Sulla (138-78 B.C.) released at least ten thousand slaves (5), and the seven thousand members of the Roman fire brigade (established 6 A.D.) were all freedmen (1). Once a slave was manumitted, he received civil rights and was very likely to gain a higher social status. The offspring of freedmen had even more opportunities to advance themselves, and some of them even became senators. This again stands in sharp contrast to the U.S., where freedmen of color were legally still inferior to whites.

The Roman slave wars

In the second century B.C., Sicily saw a massive increase of slaves that came to the island as spoils of the Eastern Wars (1). Most of these hundreds of thousands of slaves came from Syria and were forced to live under inhumane conditions in Sicily. They had to steal clothes and food in order to survive, as their masters hardly bothered to provide such necessities (6).

The leaders of the first rebellion were mostly first-generation slaves (meaning that they had not been born into slavery) working in the countryside. Led by a Syrian slave and prophet Eunus, the slaves of a single household decided they could not bear their fate anymore. They killed their excessively cruel masters, then gathered more slaves, and took the city of Enna in 135 B.C. (7). The slaves of another rebellion in Sicily, which was led by a Cilician slave called Cleon, joined forces with Eunus, who was then declared king of the rebels. No well-coordinated premeditation preceded the suddenly erupted first Slave War, nor was there any before the second or the third (8).

The number of slaves rose to tens of thousands during the first Slave War, and the Romans struggled to suppress them. In 132 B.C., one of the two highest elected political office holders, consul Publius Rupilius, was sent to end the war. He seized the important slave controlled city of Tauromenium, lashed the rebels and hurled them from the cliffs into the sea. By treason of one of the rebel slaves, the city of Enna fell to the Romans. Eunus fled but was found in a cave and then imprisoned to decay. After the war, Rupilius cleared the island of all remains of the rebellion (9).

Some minor rebellions occurred between 132-104 B.C. Because tens of thousands of slaves had died during the first Slave War, replacement was necessary. Most slaves were imported from Syria and Cilicia. They lived in the same houses as their predecessors and underwent the same inhumane and cruel treatment. After a **broken promise of freedom**, many small rebellions took place. One of these rebellions, near the city of Heraclea, evolved into the second Slave War. Salvius, a slave prophet, was elected king of the slaves. The slave Athenion led another rebellion near Segesta and Lilybaeum. Once again, the slaves joined forces.

After four years of war, the Roman consul M. Aquillius finally defeated the slaves in 100 B.C. The one thousand remaining slaves were brought to Rome to fight wild animals in the arena, but they killed each other at the public altars, and the final living slave committed suicide. Having experienced how in both rebellions the homogeneity of the slaves (such as shared language and cultural identity) led them to easily cooperate and start significant uprisings, the Romans learned their lessons and subsequently tried to create heterogeneous groups of slaves. Ensuring that they would neither share language nor culture, they effectively curtailed the possibilities of communication among the slaves. This strategy consequently worked fairly well in a manner that hardly any rebellions occurred until the year 73 B.C.

"Manumission was mostly an urban phenomenon."

In 104 B.C. consul Gaius Marius needed recruits for his legions to wage war against the Cimbri. The senate stated that no man belonging to befriended people had to be a slave of a Roman and should be released. The Sicilian praetor thereupon released 800 slaves and **promised** many others their freedom. However, important Sicilian slaveholders complained and the praetor stopped releasing slaves.

The third Slave War started as an uprising of gladiators led by the infamous Spartacus. Gladiators were mostly first-generation slaves and were at the absolute social bottom of society (10). They lived a life of violence, subjected to the worst treatment and housing conditions possible. The majority of the gladiators in the school of Lentulus Batiatus in Capua, where the rebellion started, came from Thrace, Gaul and Germania, as the master of the school had failed to create a heterogeneous group of slaves. 78 Gladiators escaped from the school and the rebels' numbers grew to about 120,000 slaves (including women and children) raiding the Italian peninsula, and defeating Roman legions.

For two years the rebels ravaged Italy. Spartacus never marched on the big cities, knowing there was hardly any support to be expected from the urban slaves. In 71 B.C., Marcus Licinius Crassus was elected praetor (a judge that also commanded Roman legions) and commissioned by the senate to put an end to the rebellion, which he did in a battle near Brundisium. Spartacus' body was never found, and six thousand remaining slaves were crucified along the Via Appia from Rome to Capua. This served a horrifying example for other slaves considering an uprising in the future.

# "Rome did quite well when it came to preventing slave rebellions."

The lessons learned

Reflecting on common factors for erupting slave uprisings throughout history, one can say that slave rebellions are mostly characterized by homogeneous groups of slaves and strongly influenced by other slave uprisings. In the U.S. for instance, all slaves were of color and similar descent, while slave revolts were influenced by the slaves of refugees from revolutionary Saint-Domingue. In Roman Italy and Sicily, where most slaves came from the Eastern Mediterranean, the small rebellions similarly influenced each other, joined forces, and grew into big slave wars. While the Romans had considerable trouble putting the three Slave Wars to an end, they nevertheless knew how to handle the aftermath. Punishment was a tool for both preventing as well as stopping slave revolts. This was especially the case in Roman Italy, where punishment was much crueler and more thorough than in the US, where rebel slaves were put on trial and sometimes not convicted. In Rome, however, it was reckoned important to execute punishments in public in order to set an example for other slaves that might consider a rebellion.

> **"Six thousand remaining slaves were crucified along the Via Appia from Rome to Capua."**
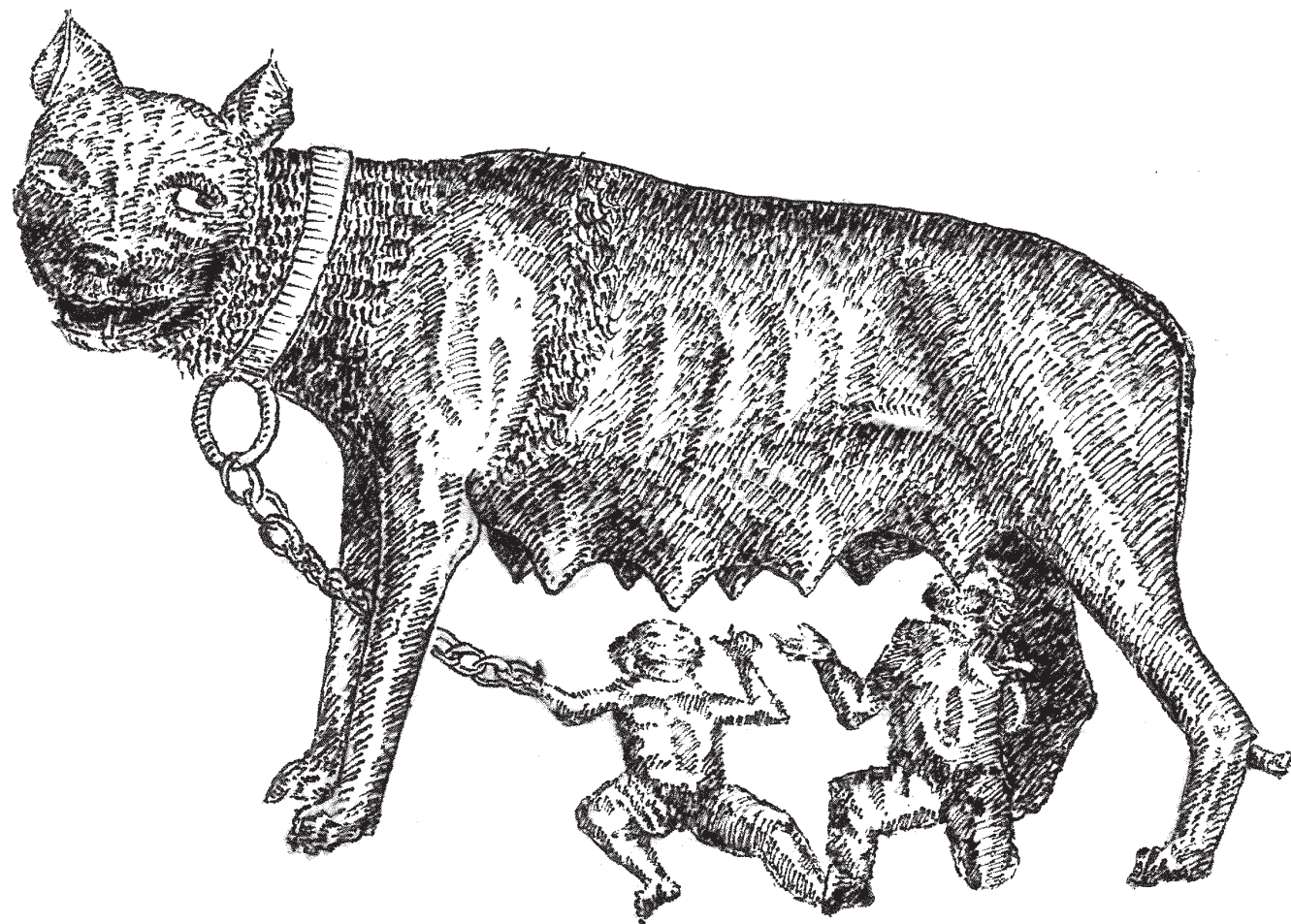
Taking the above into consideration, Roman slaves can thus be seen as living between two extremes: on the one hand they feared their masters' cruelty while on the other, they hoped for manumission, Roman citizenship and a bright future. This is because unlike other slave societies, the Romans released a large number of slaves, so many in fact, that Emperor August enacted laws to restrain the amount of manumissions (11).

Manumission, however, was mostly an urban phenomenon. Slaves in the countryside had a much lower chance of being released. Urban slaves also performed more complex tasks than rural slaves did. They worked in the secondary and the tertiary sector of the economy, and also constituted a big part of the Roman civil service; most of Emperor August's officials were slaves and freedmen. Putting into perspective the framework in which slaves were captured between present cruelty and future promises, the scholar Giuseppe Dari-Mattiacci describes how complex tasks are carried out in a better way when there is a carrot (reward) rather than a stick (punishment) in prospect. The more complex the task is, the bigger the carrot. Following this line of reasoning, manumission constituted the biggest reward a slave could receive. Since urban slavery was largely practiced in Roman Italy, the rate of manumission was very high. Consequently, all freedmen's success stories strategically served as examples for those who were still slaves, showing what could happen if they carried out their tasks to the satisfaction of their masters.

Conclusion

As discussed in this article, a homogeneous group of slaves working in a rural area is the most likely to start a rebellion. Slave rebellions occurred when the Romans placed many slaves that originated from the same area together under harsh conditions in rural Sicily. After the Slave Wars, the Romans learned to create heterogeneous groups of slaves. Furthermore, because the slaves faced situations of high risk and reward, they were less likely to revolt. Slavery was mostly an urban phenomenon, and so was manumission. For urban slaves it was safer and much more attractive to gain their freedom by manumission than by rebellion, but it required time, patience, and strength. This in turn shows that the Roman masters captivated their slaves' bodies, but not their minds. ∎

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Their Finest Hour

The Secret to British Success
in the Battle of Britain

Author **Sébastien Volker** / Background **Physics**

The Battle of Britain is the name given to the Second World War German Air Force (Luftwaffe) campaign against Great Britain from July to October 1940. It has been described as the first major war campaign to be fought entirely by air forces. The German Luftwaffe's intention was to gain air superiority over the British Royal Air Force (RAF), thus preparing the ground for an invasion of the mainland (Operation Sea Lion). From July 1940 onwards, the Germans engaged in severe air battles and bombing of the British mainland, intending to lower British morale to force them into surrender. However, the British morale was not cracked and "The Few", as the fighter pilots of the RAF are often referred to, succeeded in repelling the German attack. This victory became one of the turning points in World War II and is sometimes viewed as the decisive factor for Allied victory. This article examines the secret to British success.
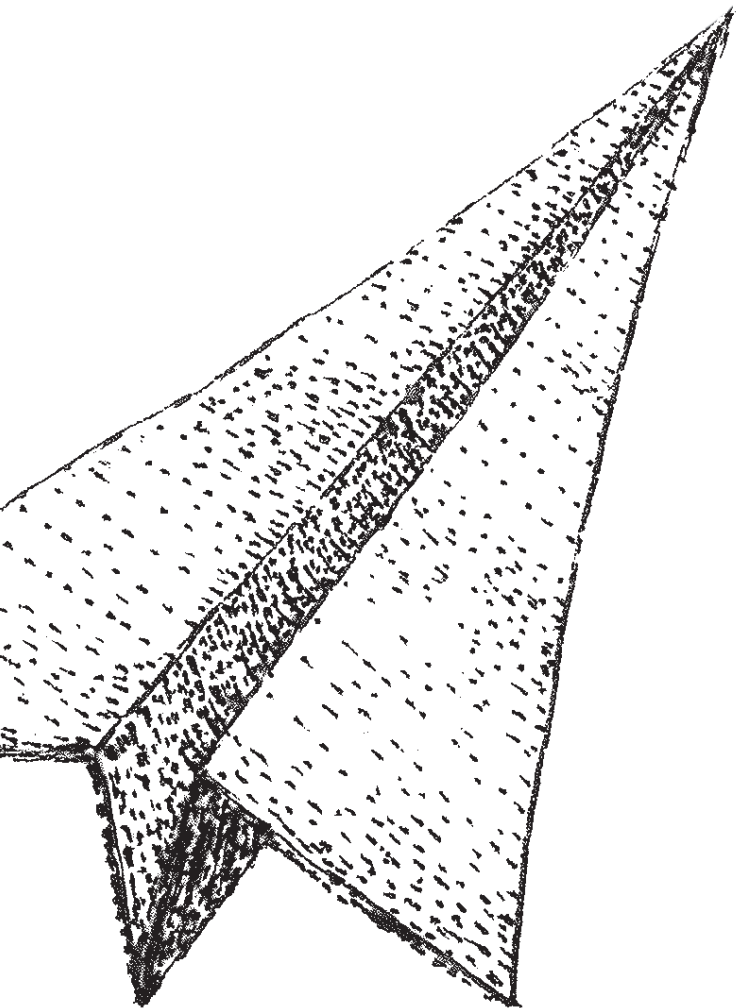
The Battle of Britain is about to begin

The attack on Great Britain was preceded by a rapid take-over of Europe by Adolf Hitler's Nazi Germany. After Poland quickly fell in 1939, Denmark, Norway, the Netherlands, Belgium, Luxembourg and France followed in 1940. The last remaining Allied power, the United Kingdom, had been severely weakened by air battles in France. Hitler was, however, hesitant to invade Great Britain. He wondered if an invasion was really necessary, hence, he gave the British the chance to ask for peace. He expected them to gladly do so, but Prime Minister Winston Churchill refused to give in: "We shall defend our island, whatever the cost may be, we shall fight on the beaches, we shall fight on the landing-grounds, we shall fight in the fields and in the streets, we shall fight in the hills; we shall never surrender" (1).

In the meantime, Hitler made plans for an invasion over land, named Operation Sea Lion, intended to take place in September 1940. While these plans were still being made, official aerial attacks on Great Britain started as early as July 10, 1940. In these first stages of the battle, coastal shipping convoys and shipping centers were the main targets. A month later the Luftwaffe shifted its attacks to focus on airfields and infrastructure, and as the battle progressed, aircraft factories and ground infrastructure also became targets. By the beginning of September 1940, when Fighter Command - one of the three commands of the RAF - came closest to destruction (1), the British were 'saved' by Luftwaffe's commander Hermann Goering. Goering lost sight of strategic priorities and took control, ordering a major air assault on London and other major British cities, referred to as the Blitz. His change of tactics was meant to force all the remaining British aircraft into a decisive battle for destruction en masse by the waiting ME 109s (German fighter aircraft). He also believed that heavy bombing of civilian areas would crush morale and extinguish the will to resist (3). By declaring "we can take it", Londoners won admiration of the free world (3). It provided extra motivation for the RAF to keep on fighting, in addition to providing relief to get back into aircraft production, repair airfields, and give rest to the pilots.

On September 15 came the climax in the Battle of Britain, when the Luftwaffe suffered severe damage in battle. Even though Goering claimed that the RAF would be eliminated in days, the British intercepted a German message on September the 17, stating that Operation Sea Lion was indefinitely postponed. Fierce bombing continued until October and night bombing throughout the winter, but an invasion never came. By continuing to exist, Fighter Command had essentially achieved its victory (1, 4).
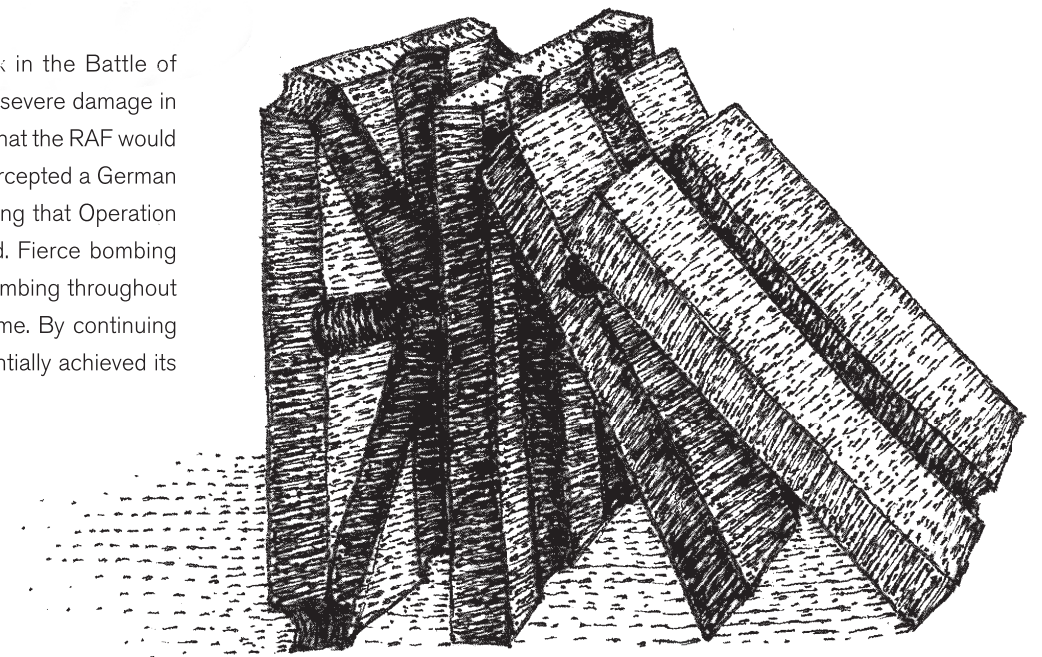
Success factors for victory

There were multiple reasons for British victory. A great part of its success was determined by the creation of the communicative defense system by British Air Chief Commander Hugh Dowding, sometimes referred to as the "Dowding System". Essential for his defense system was early warning and continuous observation, brought into practice by the radar system and the control rooms that operated it (5). As soon as the coastal radar stations spotted enemy aircraft, technicians would determine their number, distance and approximate altitude and would phone this information to RAF Fighter Command headquarters. The information would then be compared to visual sightings, and a map would be used to visualize the position of enemy aircraft. Operation rooms of Command Headquarters and the fighter groups would be warned, sending RAF squadrons into the skies. In the meantime, the Women's Auxiliary Air Force (WAAF) personnel, directed by staff officers, would keep track of the positions of the British and German Air Forces (4). Even though the Germans knew about the British radar, it still gave Fighter Command an essential counter to the element of surprise enjoyed by the Germans, who could pick the time and location of attack (5).

The maintenance of British morale was also crucial to success. Since Great Britain was fighting a war of attrition, it had to keep going to stay alive. Even though the intensity of flying, physical tiredness, and a high level of casualties was hard to deal with, there was never any loss of morale or optimism (6). The "Fighter Boys" were young, skilled, courageous, intelligent, and physically fit, and all were volunteers for flying duties (2). RAF fighter pilot Roland Beamont characterized the feeling among pilots as "this was the finest job anybody could have in the world and we were privileged to be doing it" (2). In addition to the great dedication of the fighter pilots, large parts of the population were also fighting to save the nation. An overwhelming amount of people otherwise ineligible for military service joined the Local Defence Volunteers (LDV), later renamed the Home Guard. The sincerity of young recruits and the army experience of older men provided to be useful for tasks of training, guard duties and observation, relieving the army from these tasks (6).

Highly significant as well, is that the British had the major advantage of fighting over their own grounds. Pilots that had been shot down could be recovered and returned to action within hours, which was especially valuable since the British lacked experienced pilots more than anything (4). On the contrary, German pilots would be lost forever; between July 1 and the last day of October, 967 German prisoners were taken, almost all being outstanding pilot fighters with pre-war experience (5). Furthermore, while the British had no major problems with flight endurance, the German Bf 109 aircraft averaged 90 minutes of flying time, which meant that they never spent more than 30 minutes above British soil (7).

Also contributing to British victory were German failures. When the Germans delayed an attack on Great Britain, it gave the British time to recover from the battles in France and build up defenses by training pilots, increasing war production and improving communication. "Whatever the German army's difficulties in getting ashore and staying there in June, these were far less than they would have encountered with each passing day of the summer and autumn, as Britain mustered her defenses" (1). The first drafts of the German General Staff for an invasion of Great Britain were not shown to Hitler till July 13, while France had already fallen officially on June 22. Also, throughout the battle, German strategies regularly changed and were often unclear, reflecting their deeper uncertainties about the conduct of war at the highest level (5).

Additionally, the Germans misjudged Dowding's defense system. Perhaps their worst error was to believe that the command structure was outdated and inflexible (6). By July 16, 1940, Goering's Intelligence staff revealed that they had not yet found out any of the vital secrets of Fighter Command (1). Continuing throughout the Battle, the Germans failed to understand Dowding's defense system. This was, for example, shown when on August 15 Goering decided to seize attacks on British radar systems which proved vital for British preparations and gave Great Britain most of its defensive strength. The Luftwaffe did not strike phone lines and power stations, which could have made the radar stations useless, even if the towers, which were difficult to destroy, were still standing (1).

"We shall defend our island, whatever the cost may be (...) we shall never surrender."

An additional effect was the difference in misconception by German and British intelligence forces. The Germans had greatly underestimated the size of the RAF and its aircraft production output. On the contrary, the British had overestimated German strength and output. This difference would prove to be important in the conduct of the battle. Both would exaggerate losses inflicted on the enemy, but the British would see this as motivation to keep on fighting, as they did not expect the German forces to be defeated soon. The Germans however, would decide to shift targets from air bases to industry and communications, thinking that the RAF was nearly eliminated. As an example of this misjudgment, Goering announced on September 16 that only 177 operational aircraft were left on the British side, while there were in fact 656. Reality was that the level of attrition was so high for the Luftwaffe, that it could not last more than a few weeks (5).

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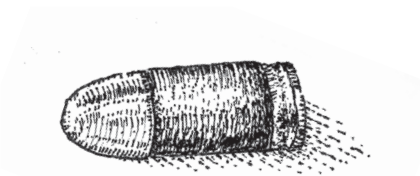
It is sometimes forgotten that not only the British pilots were dedicated to their cause; both sides had highly trained and courageous pilots, and both were flying aircraft with the newest technology. The German Messerschmitts, and British Spitfires and Hurricanes, were similarly matched; British fighters were able to shoot at a higher rate, but the explosive shells of the Messerschmitts were more effective. Depending on altitude, one would beat the other. Messerschmitts would outclass the British aircraft above 20,000 feet, but overall, the aircrafts were evenly matched in combat (5).

The key to success

In conclusion, it can be said that although many factors contributed to British victory, only a few can be considered as the secret to success: Dowding's strong communication system, the high British morale, the recovery of shot-down pilots, flight duration advantages, Germany's delay of attack, and German strategic failures. However, all can be seen as a result of the homeland advantage and misjudgment of intelligence; two factors which one could see as the key to success. As Alfred Price, a former aircrew officer at the RAF, put it eloquently: "Neither by attacking the airfields, nor by attacking London, was the Luftwaffe likely to destroy Fighter Command. Given the size of the British fighter force and the general high quality of its equipment, training and morale, the Luftwaffe could have achieved no more than a Pyrrhic victory […] In the Battle of Britain, for the first time during the Second World War, the German war machine had set itself a major task which it patently failed to achieve, and so demonstrated that it was not invincible. In stiffening the resolve of those determined to resist Hitler, the Battle of Britain was an important turning point in the Second World War" (8). ∎
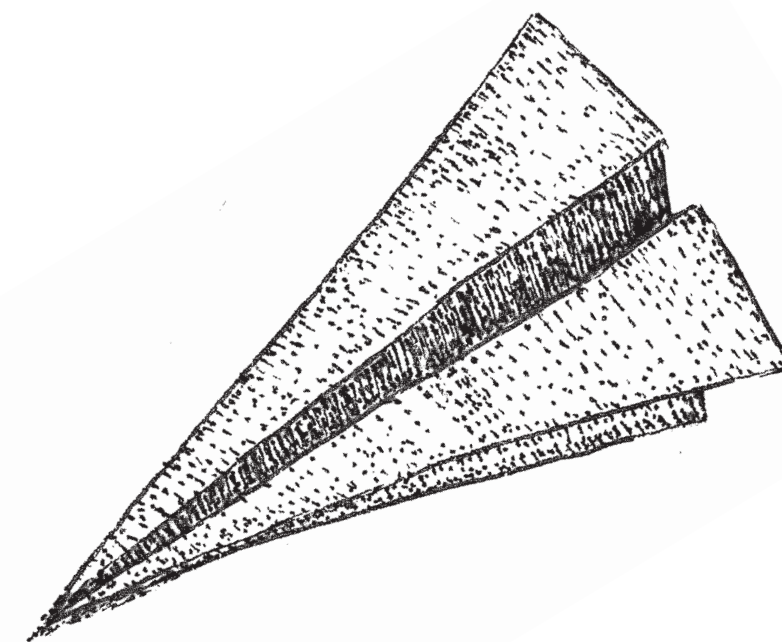
"By continuing to exist, Fighter Command had essentially achieved its victory."

Wake Up!

Interview with Dave Rubin

Author **Alexander Pietrus-Rajman (Editor)**

Dave Rubin is an American journalist, talk show host, and stand-up comedian. Known for a provocatively open discussion style, Rubin's interview highlights include Larry King, Stephen Fry, Sam Harris, and John McCain. His *Rubin Report* YouTube channel has garnered over 65 million views.

Do you ever get nervous when you interview people, or when being interviewed?

No, not really. It might sound cocky, but that's what I'm supposed to be doing. If you're doing what you're supposed to be doing, it should come naturally to you.

Does it really come naturally? Or is it an acquired skill?

As far as talking, I did stand-up in New York for about 12 years. I love stand-up! It's the most pure art form there is because you're doing your art live in front of people. Imagine if with every brush stroke a painter took, he had to turn around and ask the crowd if they liked it. In stand-up, you're constantly getting that stream of affection, or of rejection. You learn from it a lot, as an artist and as a human being.

As to where I came up with some of my political ideas… I studied politics at the Binghamton University, New York. In my free time, I'd smoke pot and watch CNN for hours!

Going back to stand-up, what is your process?

Every comic does stand-up differently. Some guys like Jerry Seinfeld have every word, every pause, every inflection of their voice primed, planned, and rehearsed, and perfected. I have great respect for that. But it's not the way I ever did stand-up, and also the reason why I never got mainstream success with it. I always really tried to be in the moment, which is pretty much how I do my interviews. I can tell you I never did the same bit twice. I was always creating it up there, hearing the crowd, playing with the crowd…

You've come a long way since then. What would you say was the best piece of advice that you've been given?

In 1999, when I was an intern at the Daily Show, I came up to Jon Stewart and asked if he could give me one piece of advice. Without a pause he goes, "two words: don't stop!" Sounds a little cliché, and I thought it was a

little dismissive, but as years have gone by I understood why it was incredibly good advice. There are a million bumps along the road, in stand-up, entertainment… anything you do in life. If you feel like you have a mission you have to get somewhere in life, no matter where you wanna get – you're never there. What he was telling me was really, "yeah. It's gonna suck in a lot of ways, but if you keep your eye on the prize, then maybe you can get there, wherever *there* is."

Late night TV sounds right up your alley, interviews and lots of comedy… Yay or nay?

The late night machine of the five minute canned interview, silly sketch, and a band nobody cares about… that stuff is just kind of dying and disappearing. I think those shows, in a lot of ways, are aging out.

What I genuinely like is listening to people (if they're saying something interesting). Listening is a lost skill. And I like listening, I like learning. One of my greatest joys in doing the show is that my opinions are being reshaped every week and my audience can see that. That's where the magic is.

I really like talking about big ideas. Because it is obvious to me that people are starved for it. People have been tricked into thinking that you can only talk to someone for five minutes, and it has to be canned and prepared, and packaged.

We talk so much on my show about free speech and about the regressive left silencing people with cries of racism and bigotry. Using those words to silence people has caused many to not want to have long conversations, to not want to open up, and we've got to reverse this NOW. If we don't get moving on this and relentlessly stand up for free speech, true discourse, and honest debate, then everything is going to get much worse.

What do you think will happen?

The regressive left that I talk about all the time – they're going to get that much stronger. And then real racists will rise up. It's already happening. But there is a huge amount of people who are decent, who don't think that you have to absolutely agree with them 100%, and who want to have their ideas challenged. They've been drown out by all these crazy people on both sides. So we've got a little window here, but I don't know how much longer this window is going to be open. We have to wake up quick, because time is of the essence.

Is conventional media to blame?

The mainstream media has, in many ways, failed us, and it's not only asking the wrong questions. The amount that FOX demonizes the left – guess what – that is equal, if not less, than the amount that MSNBC demonizes the right.

Yesterday I watched CNN. They had a Kasich campaign rep, a Trump campaign rep, and a Cruz campaign rep. That's not news! You're literally just bringing people to parrot talking points and package things. All the channels hire former campaign managers or press representatives as analysts, and pretend these people are impartial. That's silly! These people are all still involved, they're in super PACs, these are career politicians – people who make money in this field.

"My opinions are being reshaped every week and my audience can see that. That's where the magic is."

What about non-mainstream online media... do they fare better?

Here's the interesting thing about the online media. For a few years, when the internet started, the online media were incredibly good, there was a need to hear other voices, to talk about stories that the mainstream wasn't talking about as much. After a couple of years, it started to crumble. First of all, there is no bar of entry and anyone can get in on this. So you end up with predominantly opinion news – everyone giving their opinion on everything. Most of it is poorly researched. And second, a huge amount of it is just clickbait. You can tag and title your videos on YouTube in deceptive ways just to get people to click. The more salacious nonsense you do, the more sex stuff you do, the more clicks you get.

So how do you do your research?

There's so many people that are just on the left, and they only follow The Huffington Post… and people just on the right who do the same thing, and only follow Fox. The danger of that is constantly getting all your ideas reinforced, over and over. So first of all, I follow a varied selection of people of varying political beliefs. And sometimes that's infuriating, because I see things that I completely don't agree with. But that's fine, and that's how you learn.

But more than anything else, I would say I learn by talking to my guests. I don't know if I had one guest where I didn't walk away with the feeling I got something valuable out of the conversation.

Let's get into specifics. How did you learn we had this problem with the regressive left?

My awakening was when Bill Mahr had Ben Affleck and Sam Harris on. Here's Harris, a guy who laid out some pretty basic stuff about what people believe, and Affleck screams at him, "racist! Islamophobe!" The next day in the papers, somehow Mahr and Harris have to prove that they're not racists. That's real craziness.

That woke up a lot of people to the nonsense of the left. I'm glad it happened because it helped me figure out what I was on this earth for. But on the other hand, it is a shitty thing.

Where do you think the regressive left is the most dangerous?

When Maajid Nawaz coined the term, he really was talking about it in the context of Islam. Liberals who would defend illiberal values, because they're trying to somehow defend religious sensitivities.

Look, this isn't that I have some desire to draw Muhammad. I'm not a particularly good artist. I love Star Wars and guess what, if you drew Darth Vader with boobs, banging a dog… I wouldn't try to kill you. I would mock you. Try to show you why it's wrong. But I would never kill you. I'd get over it. People need to get over it. Your being offended does not trump someone else's right to freedom. The West needs to jump on board of this simple concept. The moment it's said, "well, if you draw this, you might be threatened with death, or if you leave this religion, you might be threatened with death…" and you give into that, it's game over.

What did Belgium do in the world to deserve the attacks a couple weeks ago? Has Belgium been bombing all over the world? I don't think so. And that's what people need to understand about terrorism. You can't say it's ok in some instances. If Western society is going to stand, and I think that's actually a questionable thing at the moment, if it wants to exist in 20 years the way we know it right now, it needs to stop being guilt-ridden about everything. You can't say that sometimes terrorism is ok. That the bus bombing in Jerusalem is ok because "Jews, Israel, and it's confusing." The Paris one's not ok, because "that was a theater and innocent people", the Charlie Hebdo one's kind of ok, because "they insulted somebody…" It's not ok. Period.

"Your being offended does not trump someone else's right to freedom. The West needs to jump on board of this simple concept."

You said many times there's a big problem with islamophobia, but you didn't mean what most people would think...

Islamism is the political ideology of Islam, it's backed by the Muslim Brotherhood who came up with the phrase islamophobia. The phrase is nonsense. It is not phobic to say I am afraid of something that says you or I should be killed because we're infidels, or gay, or apostates. That's not phobic. Phobic is an irrational fear. Of course it doesn't mean some people don't unjustly hate Muslims.

I saw the Cologne attacks happen, and feminists saying far right people are using defense of women as an excuse to hate Muslims. What the fuck are you talking about?! If a bunch of crazy Christians started attacking women, of course I would have called that out. If suddenly a bunch of orthodox Jews started gang raping women, guess what? Would have called that shit out too.

Where is it all going?

There's a lot of doom and gloom in all I just said, but there is a movement growing. There is an awakening. No doubt. We gotta speak up now.

Your show is growing steadily, but it's not the most popular thing ever yet
Don't tell my mom that! *(laughs)*
-- yet you pull all these A-list guests. How do you do that?

I think we haven't had trouble getting the people that we want to get because ultimately, they know they're gonna be treated fairly, and I'm not going to try to manipulate what they say. If they say something I don't like, I may push back to a certain degree. But at the end of the day – so what? You've said something I don't agree with. *Oh holy shit*. You know what I mean? ■

Between Romanticism and Realism

Author **Rozanne Milenka Versendaal** / Background **French Literature**

The Struggle of Honoré de Balzac

Never heard of Honoré de Balzac? Shame on you, since due to his keen observation of detail and unfiltered representation of society, the French author is regarded by many literary scholars today as one of the founding fathers of literary realism (1). As the "secretary of the forgotten history" of 19th century traditions and customs in France (1), Balzac wrote a large sequence of short stories and novels, collectively entitled *La Comédie humaine.* It presents a panorama of French life in the years after the fall of Napoleon Bonaparte in 1815 until the eighteen-fifties. From Balzac's entire oeuvre, a few novels, such as *Eugénie Grandet* (1833), *Le Père Goriot* (1835), *Le Lys dans la vallée* (1836) and *Illusions perdues* (1837-1843) are still best-sellers.

Literary realism attempts to represent (familiar) things as they are. Realist authors describe everyday activities and experiences in their works, instead of creating a romanticized or stylized presentation (1).

This article will introduce a new, meso-level perspective on research on Honoré de Balzac and his novels. The literary theory by the Swiss literary critic Jerôme Meizoz (1967) will be central in this respect, especially his theory of "**author postures**". As Meizoz states, "there appear to be certain variations on a number of typical author 'postures' which in the course of history have formed an open repertoire, to be actualized at diverse literary historical moments" (2). This means that Honoré de Balzac, like any other author, consciously or unconsciously chooses concrete or more abstract author postures of his predecessors and contemporaries to create his own author posture and his own fictional characters in the **19th century literary field**. To achieve deeper insights into the author postures Balzac applies in his fiction, the novel *La Muse du département* (1837) is a good choice. It explicitly focuses, as one of the few novels from that period, on the literary field of the early nineteen hundreds. The novel *La Muse* concentrates on the fates and fortunes of two romantic protagonists in the literary scene of Paris and in the province. It is important to realize that the real author Balzac and the authors he proposes in his fictional work *La Muse* are strongly related: the author and his work are **studied simultaneously**, instead of separately (which is more common in the field of literature).
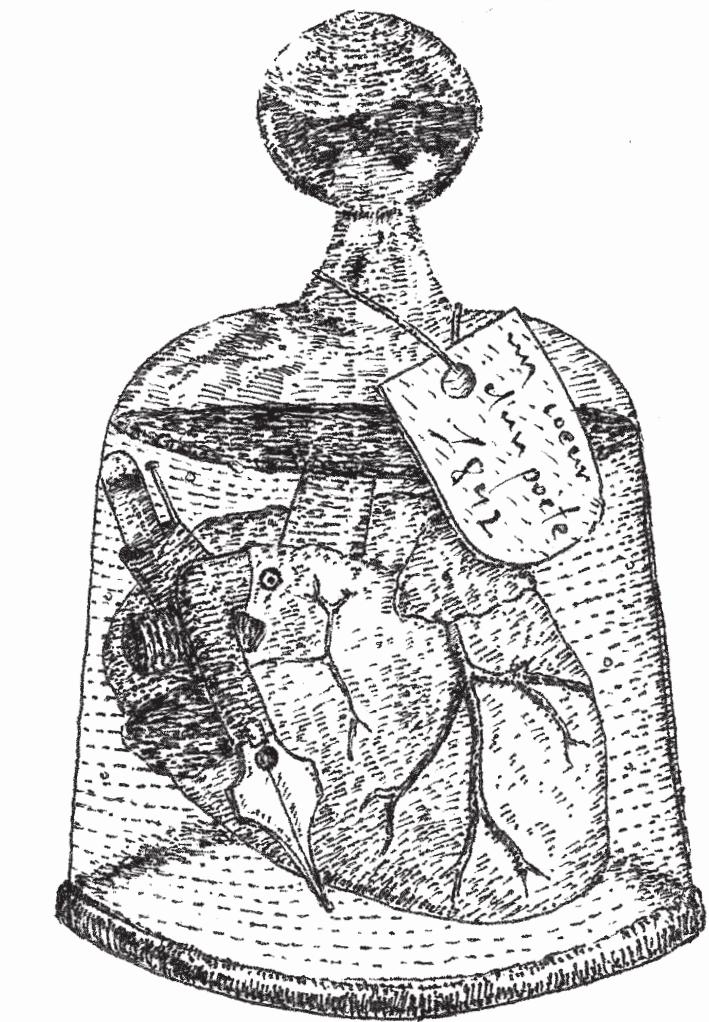
According to Korthals Altes, **author postures** authorize authors to gain a specific position in the literary field. Postures are expressed through all kinds of signals: style of writing, choice of genre, the author's clothing style, the author's style of presenting a book. Author postures can be compared to what is called a "persona" in psychology (8).

Before the 1800s, literature played a role in the context of patrons and literary salons, organized by the aristocracy, but not outside of these salons (3). However, because of important socioeconomic and sociocultural changes, literature became in the **19th century** an important cultural industry (4). Literary entrepreneurs remarked that many people were attracted to feuilleton-novels in newspapers. Poetry, however, remained a non-lucrative business and many authors dedicated themselves to the roman feuilleton. In this context, Balzac writes his La Muse du département and expresses his vision on the literary industry of his time.

The publication of Roland Barthes' *The Death of the Author* in 1967 stated that a text and its author should be seen as two different entities. In this research article, Balzac and his work are **studied together** and in relation to each other.

Romanticism's definition of **genius** encompasses the idea that a person is driven by a force beyond his or her control, which gives him or her an ability that surpasses the natural and exceeds the human mind.

A construction of characters

La Muse du département tells the story of Dinah de La Baudraye, a popular female poet in the provincial town of Sancerre, and Étienne Lousteau, a successful journalist and author in Paris. Dinah de La Baudraye is highly appreciated for her literary salon in Sancerre. The narrator calls her "la femme supérieure de Sancerre" (Balzac 84), which already indicates that Dinah is a respected member in the provincial society. The novel reveals that Dinah is a very talented poet, the "Sapho de Saint-Satur" (Balzac 34) and "La Muse de Sancerre" (Balzac 84). However, the reason why Dinah decided to show interest in poetry is less distinguished: the dull and predictable life in the province and her infertile husband annoy her so much, that she finds an outlet for her feelings in poetry and literature. Dinah thinks that her poetry will also be received well outside of Sancerre and that she could have a career in Paris, like Lousteau and Bianchon. She even considers herself a genius, which can be related to the idea of the **romantic genius**. Dinah invites both Lousteau and Bianchon to her literary salon, because she thinks that they can help her to be successful in Paris.

For the construction of his character Dinah de La Baudraye, Balzac was influenced by his friendship with his female friend George Sand (1804-1876). George Sand can be regarded as the skeleton of the character of Dinah (6). Until 1837, the year in which *La Muse* was published, Sand only published novels and poems on life in the countryside. In these works, she considers the industrialization and modernization of her time a threat to provincial traditions and the rural *mode de vie* (1). By introducing Dinah de La Baudraye as a promising poet of the province and the initiator of the literary salon of Sancerre, Balzac seems to pay homage to Sand in the first half of the novel. In this way, she becomes an important author posture. The similarities between the two women are remarkable. George Sand tried hard to position herself in the literary field of the time, like Dinah de La Baudraye tries in the novel. Sand is a romantic poet, Dinah is a romantic poet. Sand organizes literary salons, Dinah does too. The women even show similarities in their love relationships: both Sand and Dinah have unhappy marriages, which is also an inspiration for and the main reason of their writings.

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5. Balzac, Honoré de. 1837. La Muse du département. Paris: Garnier, version électronique.

6. Van Tiechem, Phillipe. 1963. Les Grandes Doctrines Littéraires en France. Paris: Presses Universitaires de France. 215.

7. See for example: Barbéris, Pierre. 1973. Le monde de Balzac, Paris: Arthaud.

8. Korthals Altes, Liesbeth. 2014. Ethos and Narrative Interpretation: The Negotiation of Values in Fiction. Nebraska: University of Nebraska.

For the construction of his character Étienne Lousteau, Balzac adopts another strategy. He chooses the author posture he knows best: that of himself. Balzac uses his own romantic author posture to create the skeleton of Lousteau. The journalist and writer Lousteau shows many parallels with Balzac himself, which is also stated explicitly by Balzac's editor in the preface of Balzac's novel *Comédiens sans le savoir* (1846): "les souvenirs de cette époque de sa vie percent à chaque page dans les livres de M. de Balzac; […] Lousteau, c'est Balzac" (5). This indicates that Balzac makes use of his own experiences in the literary industry to shape his character Lousteau. Both Lousteau and Dinah are silhouettes of reality and are in fact Sand and Balzac himself, although it is important to notice that Dinah and Lousteau only represent parts of the personalities of Sand and Balzac. According to earlier research, Balzac is represented by a various number of characters of *La Comédie humaine*. Lousteau and Lucien de Rubempré for example represent the artistic Balzac, and Félix de Vandenesse represents for example the political Balzac (7).

Like Dinah, Lousteau is in this part of the novel presented as a romantic author. Lousteau feels like a badly understood writer, an outsider. This is the moment in the story that Lousteau and Dinah fall in love. Lousteau realizes that he identifies with Dinah and her ideas on romanticism. Dinah, in her turn, inspires him as a muse.

A complete reversal

Although Balzac seems to argue strongly in favour of the romantic movement in the first part of *La Muse*, he presents a completely different view on romanticism in the third and fourth parts. As a reader, you leave the province behind you, and you find yourself in the literary industry in Paris instead. However, it is interesting to notice that the characters of the story are the same romantic human beings as in the first part. In this way, Balzac creates a laboratory experiment, in which Lousteau and Dinah as romantic poets are placed in the industrialized world of the literary industry. Balzac shows immediately that Lousteau is unhappy in Paris: Lousteau is "fatigué de ces tournoiements de la vie littéraire" (Balzac 232). He feels tired and deceived. How may we explain these feelings of Lousteau?

"Honoré de Balzac (1799-1850) is regarded today by many literary scholars as one of the founding fathers of literary realism."

According to the theory of Bourdieu, the literary field of Paris consists of a real force field, in which all different participants or agents try to achieve a more rewarding position. One can see that Lousteau adopts Parisian attitudes and customs, so that he can survive in the Parisian literary field. Lousteau is forced to write feuilleton-prose in order to survive. Although the provincial aristocracy considered Lousteau a provincial hero, Lousteau himself knows that he has sacrificed a lot of his ideals for the literary business. Lousteau has chosen to participate in the large-scale production of literary works, which is orientated towards satisfying the expectations of the general public. Considering this, the example of Lousteau shows how Balzac himself has been pulled along in the literary business of his time. The romantic author posture of Balzac himself is in this part of the novel used as some kind of anti-posture: it has lost its function in the modern, industrialized world.

However, romanticism has not completely disappeared at the end of the novel. In the fourth part, the reader discovers that Dinah de la Baudraye, who misses Lousteau, travels to Paris to regain Lousteau and his love. There, she sees that Lousteau has surrendered himself to journalism and feuilleton-writing. She is disillusioned. After she gives birth to two children by Lousteau, Dinah decides to return to her husband in the countryside. This resignation at the end of the novel is very remarkable. The difference in behaviour of Lousteau and Dinah is also reflected by the lives of Balzac and Sand themselves. Although the relationship between Balzac and Sand was an intense one, the two authors had their differences of opinion concerning the upcoming literary field.

Conclusion

La Muse du département may be considered an interesting reflection of the rise of the literary industry in the first part of the 19th century. The novel shows Balzac's struggles with his own identity and position in the literary field, as well as with the ideas of other authors. This book has been regarded as a turning point in Balzac's literary career. The works he wrote before the 1830s were mainly romantic in nature, but *La Muse* shows that Balzac really wonders if romanticism is still the path to follow. The choice of the author postures in the work are excellent: the postures of Sand and Balzac shape the characters of Lousteau and Dinah and their function is of crucial importance. Lousteau and Dinah represent different *statuts de l'écrivain* in a tumultuous and rapidly changing society, and without the author postures of Balzac himself and Sand, actualized by Balzac, they might not have been so convincing. ■
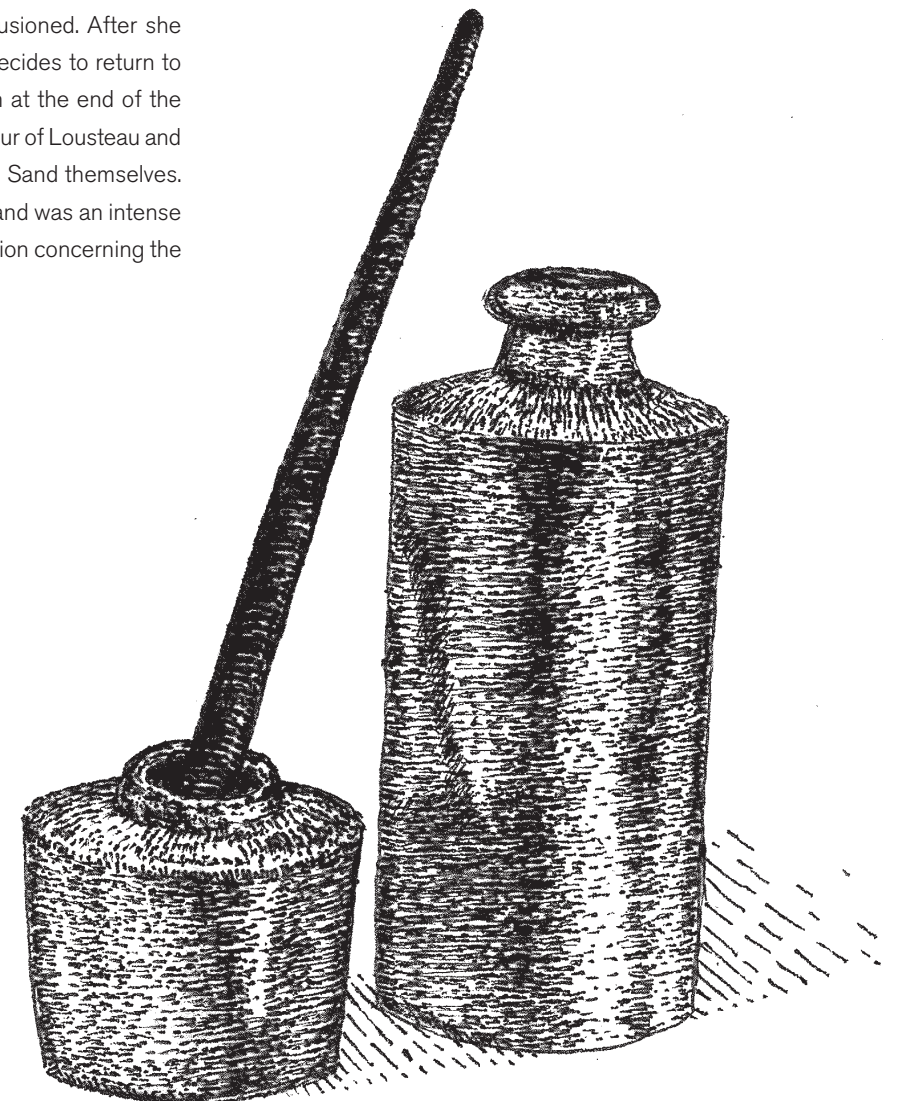
On Lacking Knowledge

Author **Jonathan Krude** / Background **Philosophy (University of Cambridge)**

How Can We Reply to Scepticism?

I do not know how I ought to live my life, and I have the strong suspicion that nobody else knows either. Not knowing things is neither a very unusual nor an extraordinarily horrifying state to be in. While many professional philosophers spend much of their time disagreeing with (or, even more often, ignoring) sceptical arguments, for most others it appears to be one, if not the, most evident truth of philosophy - we do not know very much about this world. Socrates provokingly admitted his complete ignorance around 400 B.C. (1) and current literature suggests we have so far failed to prove him wrong. Certainly, attempts to do so have not been scarce, differing strongly both in their beauty and their heroism. Mankind has authored few accomplishments that are more awe-inspiring and touching than philosophers' ingenious struggle for a foothold from which we can formulate a claim to knowledge.

Sceptical arguments are arguments in favour of the conclusion that we do not know anything about a topic which common sense assumes us to know a great deal about. Typical examples are arguments regarding our knowledge of the external world or other minds.

Archimedes is said to have claimed he could move the earth, if only he had a fulcrum and a lever of sufficient length. In Epistemology, an **Archimedean point** is something which is certain enough that we can trust in it and construct our knowledge of the world from it.

The major sceptical argumentation is refreshingly simple: For many of our beliefs, we have so little evidence that it is not only compatible with the world being very different from our expectations, but it even fails to make our credence any more likely than its alternatives. Consider just one example: For all I know, I might not have hands. I could be a handless creature dreaming of being a member of the human race. It is not that I can (easily) prove that I do not have fingers; I have merely no reason to think that I own any, since my experience tells me nothing for or against this scenario. This schema can be easily applied to (almost) all instances of human belief and all general replies to the argument either fail or do not even engage with the problem. One of the most chivalrous counter-manoeuvres has been constructed by the French philosopher Descartes. After having followed the argument above into its darkest consequences, Descartes finds a point of certainty in the knowledge of his own existence that is unaffected by the force of the demonic argument and even strengthened by all doubts: "I think, therefore I am".

Few have taken the sceptic as seriously as Descartes, and hence, many other strategies of resistance are less exciting. Some have suggested that the notion of knowledge applied in the sceptical argument simply demands too much from us. Our notion of 'knowledge' merely needs to be widened a little, and we will swiftly and safely count as knowledgeable again. Could we not agree that we know something whenever we think that something is true and the causal story leading to that specific belief is of a decent nature (3)? In this case, Socrates may have had knowledge after all, unless of course, any other than the believed scenario happens to be correct. Or may we call something 'knowledge' whenever someone has the epistemic state that paradigm thinkers tend to have (4). Then Socrates (and Descartes) should have been knowers. The requirements for knowledge depend on the relevant context, making sceptical arguments inapplicable to the context of common thought (5).

Discussions like these tend to bring philosophers under the suspicion of dwelling all too highly in their intellectual ivory towers to be either interesting or relevant to our life. We can use the word 'knowledge' in whatever way we like. Nevertheless, we still seem to have an epistemic problem which is unlikely to disappear by these conceptual debates. It is a problem that returns to the surface whenever we are forced to actively decide between different alternatives. Whenever we act in the world, we try to maximize the chance that the results of our actions are better than the alternatives. In this case an epistemic state is needed in which we are able to ascertain that any choice of action is in fact more likely to have good consequences than bad. Otherwise, all our acting is nothing but an arbitrary charade, without any chance of affecting the world according to our hopes.

Epistemic angst is the feeling that arises once we understand that many of the things we used to accept as true may be completely mistaken, for example beliefs about our loved ones or about what matters in life.

Normativity is the dimension of what ought and ought not to be done.

"For many of our beliefs, we have so little evidence."

Whatever our notion of knowledge may be, our sceptical argument clearly attacks our claim on that last epistemic state. We may think that human happiness is a good outcome of an action, but our intuition in favour of this claim is completely coherent with a scenario in which the only good lies in the compliance with, for example, a religious doctrine. This problem parallels the argument from above. Our justifications for our convictions (human happiness is good) and decisions seems to be insufficient to defeat possible alternatives (something a religious doctrine says is good).

We thus find ourselves in a fairly horrifying situation: No matter what could be good in our life and for our decisions, we have no chance to affect the probabilities in life with our actions. Due to our own ignorance, we cannot have high hopes of living a good and meaningful life. This is not just a philosophers' nightmare, it affects our ability to act meaningfully directly. However, in spite of the ancient origin of sceptical fears, it is hard to find the imprint of **epistemic angst** in human history. In spite of (or perhaps because of) its brisance for action, scepticism regarding **normativity** has hardly affected our decisions. Just as with universal scepticism in philosophy it has mostly been ignored rather than defeated. Instead, a colourful variety of normative ideals have shaped the centuries. Not only the classics such as human happiness, freedom, justice and beauty, but also surprising constructions such as nations, ethnicities or peculiarly angry religious doctrines have guided human action for many years.

Whenever the world has been transformed, it has happened under the guidance of powerful normative ideas. Humans from all over Europe travelled to fight in Palestine (and elsewhere) because their church convinced them that this was the right thing to do (6). The French people killed their king out of their enthusiasm for freedom and equality. The German youth volunteered to go to war in 1914 for their ideal of Nation and Duty. Of course, for each of these examples, personal interests and political Machiavellisms played their role. And yet – in these cases, frameworks were shifted by the credence humans gave to how they ought to live their lives (7). In those days, normative scepticism was nothing but a particularly dangerous inhabitant of the ivory tower. Today, normative scepticism may not reside there anymore.
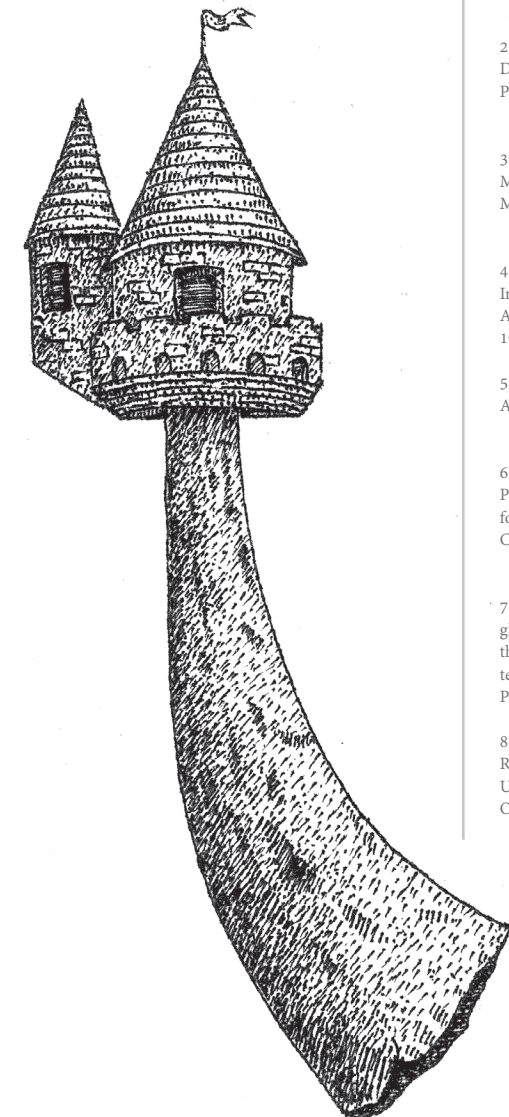
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6. Maier, Christoph T., 2000, Crusade Propaganda and Ideology Model Sermons for the Preaching of the Cross, Cambridge: Cambridge University Press

7. Steger, Manfred B., 2008, The rise of the global imaginary political ideologies from the French Revolution to the global war on terror, Oxford/New York: Oxford University Press

8. Abhijit Banerjee, Vinayak; Bénabou, Roland; Mookherjee, Dilip (ed.), 2000, Understanding Poverty, Oxford, New York: Oxford University Press.

Finally, and only after the catastrophic experiences of the previous century, it appears that our society has grown suspicious of normative claims. Our current ideals must be much more silent than their predecessors since their results are very hard to find. Many claim to care for human happiness; yet compared to the radical shifts evoked by earlier ideologies, these whole-hearted convictions do not appear to be wide-spread. When a majority genuinely believed that something was right, they shook the foundations of society and shaped the face of the world accordingly. They built palaces, fought wars and took unbearable hardships upon themselves to act according to their ideals. Seeing this, and seeing that we are part of the most technologically advanced and economically powerful society in the history of mankind, the persistent continuity of large-scale human suffering makes it appear quite unlikely that all too many of us actually care for human happiness (8). Instead, there is much uncertainty regarding whether our moral intuitions are really all that convincing in the end. Not few are without religion, without nationalisms, without philanthropy, left without orientation – we are now, finally, doubtful about our normative beliefs.

In the Socratic methodology, **aporia** is the state in which we notice that what we took to be known has never been – so that we can start looking for real knowledge.

With Apotheosis International eV, a charitable association has been founded in 2015 to support these developments and to strengthen the voice of those who are working on a new debate, in university societies, conferences, seminars and the journal hybris. The quickly growing network is interdisciplinary, international and open to everyone who wishes to help answering the large questions in a **rational way**.
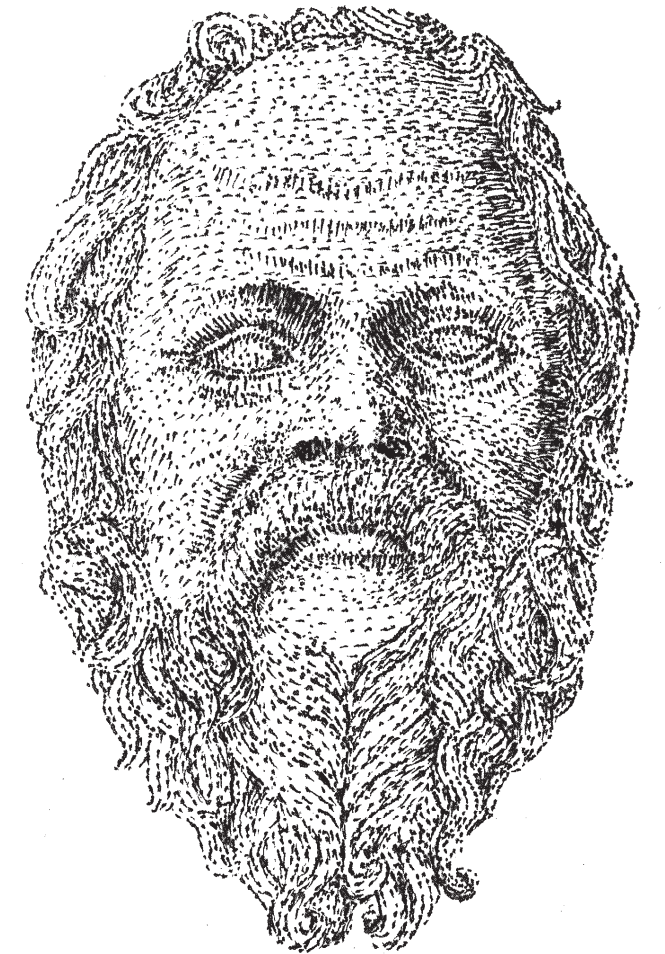
At first sight, this development is threatening. How are we able to move forward as a society given a normative scepticism, which is not only theoretically correct but also taken seriously by many? Will we not fall even deeper into defeatism, into a pointless lethargy? The sceptical arguments have not grown worse only because we stopped ignoring them. As the public opinion stops running after its red herrings, philosophy will no longer remain an endeavour for the ivory towers. Finding an answer to the sceptic is the most urgent task for any human society – as it has always been. Now, we may be able to start solving this task as a society, if we understand that our collective lack of orientation is an essential step of **Socratic aporia** – and if we attempt to defeat the sceptic together.

This development is recent; hence the evolving responses are still very young. We have to attempt to create new networks of thinkers who hope to find a response to the most fundamental questions in a **rational way**. If philosophers are ready to form a new public dialogue and allow their own discourse to be transformed by its results it will give us the impetus that is needed to defeat the sceptic. To achieve this, we all have to join the debate. Together, our different abilities and views can attempt to make our thoughts and life matter. ■

What is the Value of Research?

Opinion

Author **Richard Oberdieck** / Background **PhD in Chemical Engineering**

Whether you are a Master student trying to run an experiment, a PhD student hoping to secure a grant for an off-campus field trip, or a professor aiming to hire a new post-doc, almost everything in the academic world costs money. However, since research in all but a very few cases does not return any (immediate) profit, this begs one to wonder: who should pay for research, and how much?

Currently, research funding is primarily provided by third parties, such as industry or state. In the case of industry-related grants, the common practice is that either the industry partner approaches the professor, or that the professor has prior connections to industry. Companies are profit-oriented entities. To provide funding, a thorough risk assessment is usually conducted. Such an evaluation of research could help us understand its value. Unfortunately, there are two issues with this: Technology Trends and Risk Aversion. The more applicable a research field, the greater the funding from industry. This is exemplified by current developments in battery technology. However, applied research is always the result of more fundamental research, and it is highly doubtful that private companies would pay €1 billion for a pure research fusion reactor (1). Second, for obvious reasons companies will only collaborate with established researchers, and are much less likely to fund aspiring or young researchers in order to minimize the risk of failure. This is clearly not a feasible long-term strategy. So if we take company-inspired funding as a starting perspective, we might have a short-term higher productivity, but the long-term perspective and success of research will decrease. Thus, only an entity with a long-term interest such as the state would have any interest in funding highly important fundamental research. If good research conditions are provided to researchers, the appeal to society will rise over time and make it an attractive business and investment location. However, the question is: how much should this cost? Let us consider a couple of ballpark figures: between 2007 and 2013 the United States and the EU Commission alone spent over €1 trillion on research and development. That's right: within 6 years, monies equivalent to the GDP of Mexico (2) (15th highest in the world) were spent on research, and that's only by the US and the EU Commission. More importantly, as eloquently stated by Margaret Thatcher: "There is no such thing as public money, there is only taxpayers' money." As a PhD student, I have received some of that money, and if somebody was to stop me on the street and ask me "What am I paying you for?" I do not think I could give a satisfactory answer to myself (let alone to that person).

Richard Oberdieck (Imperial College London) is the author of two blogs, "Campus Politics" and "Why Rankings Suck" on our website (honoursreview. nl). You can read more of his articles on the Swiss Research and Technology website (reatch.ch). If you want to publish similar content, don't hesitate to contact us.

As many **attendees** are students or members, of course the average prices are lower. However, the lowest possible registration fee is $99 (for unemployed members, whereas the membership has to be paid for as well).

"Who should pay for research, and how much?"

Is it too much?

Yes. It is. But the much more important question is: why is it too much? How is it possible to spend €1 trillion in 6 years? In a very interesting blog article (3) – which argues that research grant money is not a waste – the author states that about a third of the grant money is used for salaries. The rest is attributed to overheads from the department, equipment costs, conference and tuition fees, and so forth. The article also describes how grants are decided by panels of scientific researchers who themselves have to apply for grants, creating a snowball-like system. This is where, in my opinion, the two major problems with academic research lie at the moment:

1. The cost to perform research in the academic world – even the most basic which requires only a pen and paper – is too high. To give a couple of examples for this: a subscription to the journal "Tetrahedron" for up to 5 users (which is nothing within a university) costs €10,678 (see their online store). This is even more staggering, if one considers that its **Impact Factor** is only 2.641. Another example is academic conferences: the registration fee for one of the biggest chemical engineering conferences in the world, the AIChE Annual Meeting, is up to $1269 for a non-member. With an attendance of over 2000 people, it is easily imaginable how much will be paid by the **attendees.** As these fees are in almost all cases paid for by the university, they are part of the two thirds overhead described above.

The Impact Factor is a measure related to the importance of a journal. As a rule of thumb (although the values vary greatly between fields) a journal with an Impact Factor 2 is considered a good journal, whereas the best journals have an Impact Factor of 5 and above. One of the leading scientific journals, Nature, has an Impact Factor of 41.456.

2. The academic world is a self-sustaining system: researchers submit proposals which are judged by other researchers, who themselves have to submit proposals. The same applies for publications, awards, and even positions such as editorial jobs in scientific journals. From a scientific standpoint, this is the only thing that makes sense: "when we write grant proposals, we write them at a level where someone in our field or closely related field can understand them" (3). Of course, only somebody with an expertise in the subject can judge whether the contribution aimed at with a grant proposal is worth funding. The same goes for the review process and all other aspects of academic life. Unfortunately, this critical thinking is only one aspect of the scientific reality. Another one is politics: if I help you to publish this paper, you will support me in this grant application. If I nominate you to be associate editor in a journal, you will host a student of mine for a time. This trading of favours, positions and influence is a huge aspect of academic life. A tragic example of this was the death of Stefan Grimm, a professor for toxicology at Imperial College London who took his life at age 51 after failing to secure research grant money and being threatened by the head of department (4).

What can be done?

Personally, I strongly believe in the value of fundamental and applied research (although the distinction is purely artificial and non-existent in reality). In the long-term, society greatly benefits from many aspects of research performed with taxpayers' money. However, we should stop pretending that the academic world exists as a self-sustaining environment. As much as companies are held responsible by their shareholders, universities and researchers should be held accountable by society where the taxpayers' money – which could be spent on schools, roads and hospitals – is going. Such an approach to research would have immediate consequences: the number of academic conferences would be drastically reduced, in the digital world the subscription prices of journals would be a fraction of what they are now, with a very limited use of print editions, if any. Graduate students would not need to pay tuition fees (which is nothing else then re-routing money from the state to the university via a third party) but just hired as employees.

The most important thing is a change in attitude: currently, all of us think in terms of industry or academia, applied or fundamental research, as research is useful or a (partial) waste of money. It is this type of divisive thinking which generates many of the issues we see today; if researchers were surely able to cover their core research expenses (salaries, equipment costs etc.) no matter the research grant at hand, they would allow themselves to be freer of academic politics. Equally, fundamental researchers would have to justify themselves for their direction and methods used: why were certain questions investigated while others were not? Why were specific methodologies, frameworks and approaches used, and where do these lead to? These types of questions – which can only be asked by scientists from that research area – need to be considered in an honest and critical way. If a professor's existence hinges on whether or not he or she gets a certain grant, he or she will pull every string and every trick in the book to get the money. However, if these questions are considered in a periodical, proactive fashion, such situations can be avoided. One way to do so are departmental seminars, regional get-togethers, or even periodical Skype meetings with peers from around the world. All of these points are not the perfect (or only) solution, but they aim to address the issues which continue to persist in today's academic world. If we spend €1 trillion over 6 years, then we should care about where and what we spend this money on. ∎
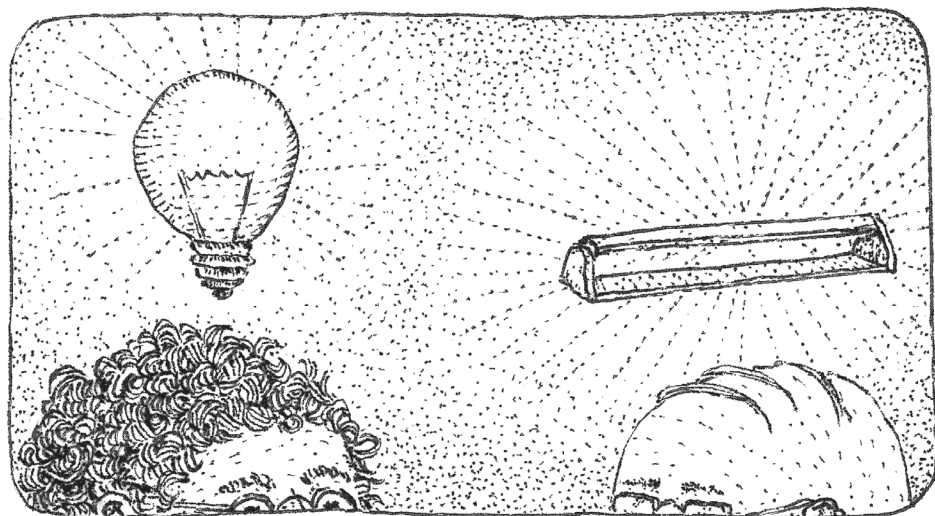
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