

An exchange on “One hundred years since Albert Einstein’s annus mirabilis”

28 July 2005

The following is an exchange on the four-part series entitled “One hundred years since Albert Einstein’s annus mirabilis”.

Thank you for your article entitled “One hundred years since Albert Einstein’s *annus mirabilis*”. I’ve always enjoyed history of science, reading Stephen Hawking’s books, etc., and your article perfectly sums up the differences between relativity and quantum theories. It’s a nice read that I would recommend to anyone.

It was a great read up until the last paragraph in which you departed from analysis to bog down into ideology. Your conclusion gave me a good laugh! To bring you back to reality, let me tell you two things:

First, the Pope in no way ever condemned the relativity or quantum theories. Alright, you can criticise the papacy in social subjects like abortion and I would agree with you, but quantum theories? Gimme a break. Second, and I’m sorry it will terribly hurt your ideological feelings, the scientific progress of the last two hundred years expanded from (and I would even say because of) the liberal, capitalist societies.

If you look today which regimes you “socialists” condemn, it’s those capitalist states where the scientific research continues and is sustained and encouraged. While in the regimes you “socialists” are more complacent with, be it various past-communist dictature like Cuba or North Korea, or theocracies like Iran, the scientific research simply does not exist at all.

One can only conclude that, far from being “preoccupied with mankind’s future progress”, the socialists are ready to support any regime that opposes capitalism, even if it means that “extending the boundaries of our knowledge of nature and the universe” will become less and less possible in the future.

But anyway I’ve already forgotten that final paragraph... Thanks again for the bulk of the article, definitely a great read for anyone interested in physics.

Sincerely yours,

CM

Dear CM,

Thank you for your remarks on the articles on Einstein, particularly your criticisms of the last paragraph. They provide us with an opportunity to expand on our conclusion.

In your mirth, you completely missed the point. The article was not specifically taking issue with the stance of the Pope on modern physics. I am well aware that the Pope and the Roman Catholic Church has been compelled to take a step back from the days when it burned Giordano Bruno at the stake and threatened Galileo Galilei with torture. The fact that the church now convenes the Pontifical Academy of Sciences and refrains from openly disagreeing with the established facts of modern physics does not make it any less a bastion of reaction and mediaevalism. But that was not the issue being raised.

The reference to the death of Pope John Paul II was, rather, intended to highlight the unprecedented media coverage that accompanied it, compared to the general lack of interest in the anniversary of Einstein’s ground-breaking 1905 papers. One could, of course, dismiss the contrast

as being of no significance—a quirk of present day journalism. It is, however, broadly symptomatic of an intellectual climate in which many different forms of irrationalism, mysticism, religious dogma and superstition are openly promoted, to the detriment of a scientific outlook. This phenomenon is closely connected to the general political climate and the broad assault that is underway internationally on basic democratic rights—something that the *World Socialist Web Site* has meticulously documented.

In the United States, for example, an ideological offensive by the religious right to put theological superstition on the same level as Darwin’s theory of evolution is very advanced. You might care to read a recent WSWs article that takes issue with the decision of the Smithsonian Institution—a prestigious government-funded organisation devoted to science—to show a film uncritically promoting the quasi-religious views of the Discovery Institute (see “An attack on science: Smithsonian Institution to show film on Intelligent Design”).

This offensive is not simply a result of pressure from religious fundamentalists. Various social constructionists, postmodernists and cultural critics, who generally posture as being “of the left” are playing a significant role in undermining science as well. At the core of their outlook is a denial of objective reality and a descent into subjectivism, which places everything—superstition and science—on a par, judging the merit of any theory on the basis of subjective criteria. In the most extreme cases, they replace genuine scientific investigation with “black science”, “green science” or “feminist science”.

As a result, scientists feel somewhat on the defensive. For instance, Nobel-prize winning physicist Steven Weinberg, who is by no means a socialist, has commented extensively on some of these issues. In an essay entitled “Sokal’s Hoax” written in 1996, he wrote (particularly of the postmodernists): “If we think that scientific laws are flexible enough to be affected by the social setting of their discovery, then some may be tempted to press scientists to discover laws that are more proletarian or feminine or American or religious or Aryan or whatever else it is they want. This is a dangerous path, and more is at stake in the controversy than just the health of science. As I mentioned earlier, our civilisation has been powerfully affected by the discovery that nature is strictly governed by impersonal laws. As an example, I like to quote the remark of Hugh Trevor-Roper that one of the early effects of his discovery was to reduce the enthusiasm for burning witches. We will need to confirm and strengthen the vision of a rationally understandable world if we are to protect ourselves from the irrational tendencies that still beset humanity” (*Facing up: Science and its Cultural Adversaries*, Harvard University Press, 2001, pp.153-4).

There are aspects of Weinberg’s collection of essays with which we would take issue. But we stand completely with him, and others who have raised similar concerns, in defence of science and a scientific outlook—and, more broadly, in defence of the heritage of the Enlightenment against the reemergence of irrationalist tendencies. One weakness of Weinberg’s approach is that while he debunks, often wittily,

his opponents, he is at a loss to explain why these trends have emerged. Since the 1990s, when Weinberg was writing, the influence of the religious right in the US has grown substantially, now dominating the Republican Party and the Bush administration. Similar processes are underway all over the world, and they are not accidental. They are, as I wrote in the offending paragraph, a reflection of the “underlying social decay of capitalism.”

This is not particularly difficult to grasp. Incapable of offering any hope of a better world for the vast majority of mankind, the political defenders of the status quo are increasingly relying on a social base rooted in ignorance, superstition and prejudice. Many people are deeply troubled by these processes. While not necessarily agreeing with socialism, they do not share your rather blasé confidence in the capacity of “liberal, capitalist societies” to preserve, let alone advance, civilisation.

That brings me to a second point. Why would our ideological feelings be hurt by your assertion that “the scientific progress of the last two hundred years expanded from (and I would even say because of) the liberal, capitalist societies”? If you re-read the articles on Einstein carefully, you will find that this point is stressed. Marx and Engels insisted, in the Communist Manifesto, that capitalism, by its very nature, drives the constant revolutionising of the means of production which, in turn, becomes the driving force for scientific investigation.

But what was true of the Renaissance, the Enlightenment and the emergence of industrial capitalism in the nineteenth century needs to be heavily qualified when we come to the twentieth century. The eruption of World War I marked a sharp turning point: the progressive expansion of the productive forces ran up against the inherent limitations of capitalism—the division of the world into separate nation states and production for private profit. The world was plunged into disaster for the next 30 years. To claim that this had no impact on science would be ludicrous. An entire generation of physicists, Einstein included, was plagued by economic breakdown, war and fascism.

After World War II there was a temporary restabilisation of the capitalist system, the product of a series of processes that I cannot go into here, that lasted for less than three decades. But it is undeniable that capitalism has proven incapable of overcoming any of its basic contradictions. The euphoria within ruling circles that accompanied the collapse of the Soviet Union in the early 1990s has long since passed. Far from ushering in a new era of peace and prosperity, the opposite has occurred. And this has had a profound impact on science.

Under socialism, the globalisation of production would be the basis for the development of rational planning on a world scale. Under capitalism, it has resulted in ferocious competition and the relentless drive to subordinate every aspect of society—including science—to the criteria of international competitiveness and profitability. Weinberg’s entry into public debate stemmed from his shock at the decision of the US Congress in 1993 to axe the Superconducting Supercollider project. Public funding for basic scientific research, as well as for education, has been in decline, not only in the US, but around the world.

Increasingly scientists are compelled to look for private funding or to those areas of government spending that are expanding—most notably, the military. The efficacy of science is more and more being measured on the basis of immediate results, rather than intrinsic worth. If research cannot pay its way, it is downsized or axed. In some universities, physics departments have been broken up and amalgamated with other schools, such as engineering.

Research for profit has also led to the extension of privately-owned knowledge. Of course, as Einstein’s early career testifies, there have always been patents. But the practice, for instance, of putting patents on segments of human DNA, that act as a legal barrier to research and development by other groups of biologists and medical researchers, involves a qualitative extension of the process. It cuts directly across free

and open communication and collaboration—which have always proven critical to the development of science.

We do not deny that science continues to make progress. But its subordination to the requirements of profit and the nation state inevitably retards its development and directs its application to uses that are at odds with the aspirations and needs of the vast majority of the world’s people. In saying this, we do not in any way share the outlook of the Greens, who blame science and technological progress, not the present organisation of society, for the dangers of environmental catastrophes and war.

The final point I would like to make concerns your comments about “you socialists,” which betray a rather light-minded attitude. If you had troubled yourself to examine what has been written on the WSWS, you would have found that our attitude to North Korea, Cuba, Iran and similar regimes is the opposite of what you claim. Socialism has nothing to do with Islamic fundamentalism or with the perversion of Marxism known as Stalinism. The international Trotskyist movement has a long and principled record of political opposition to their representatives.

We do not need to be lectured on the deeply reactionary impact of those you mistakenly call “communists”—Stalin, his henchmen and followers. Stalin’s show trials and the genocidal purges in the 1930s were directed above all at physically eliminating the Trotskyists—the genuine Marxist opponents of the Soviet bureaucracy—along with all those expressing any trace of political or intellectual independence.

No one was immune, not even physicists. The fate of the eminent theoretical physicist Lev Davidovich Landau is a case in point. He was rounded up by the Stalinist NKVD in April 1938, along with two other physicists, Yuri Rumer and Moisey Korets, for publishing a leaflet entitled “Workers of the World, Unite”, which read in part:

Comrades!

The great cause of the October Revolution is being despicably betrayed. The country is inundated with torrents of blood and filth. Millions of innocent people are being thrown into prisons and no one can tell when his own turn will come.

It is clear, comrades, that the Stalinist clique has carried out a fascist coup. Socialism has remained only on the pages of the habitually lying newspapers. In his rabid hatred of genuine socialism, Stalin is no different from Hitler and Mussolini. Destroying the country for the sake of his own power, Stalin is turning it into an easy prey for the brutal German fascism.

The only way out for the working class and for all toilers of our country is a struggle against Stalinism and Hitlerist fascism, a struggle for socialism.

The meaning of these lines is abundantly clear. Landau, who was born in 1908, represented the best of the generation that had flowered in the extraordinary climate immediately after the October revolution—a climate of intense intellectual ferment. His hostility to the anti-intellectualism and political repression of Stalin and his gangsters derived from a deeply-felt conviction, for which he courageously risked his life, that socialism provided the only way forward for mankind. He was eventually released from prison due to the efforts of his family and other prominent physicists. What became of Rumer and Korets is unknown.

It is worth dwelling on this example because the fate of Landau, along with that of tens of thousands of socialist opponents of Stalin, gives the lie to the slander, endlessly repeated in subsequent decades, that the Stalinist bureaucracy was “socialist” and “communist”. In the greatest falsification of the twentieth century, Stalin, in the name of Marxism, brutalised or eliminated its most conscious, talented and courageous exponents. While the purges had their most ravaging impact in the Soviet Union, their consequences were felt around the world, in every field of political, intellectual and cultural life.

Contrary to what you imply, science and genuine socialism are intimately related at every level. For those involved in the remarkable

scientific inroads of the past century, the obvious question arises: how can humanity gain such insights into the inner workings of nature, yet fail to ameliorate, let alone abolish, such elementary social problems as poverty, treatable disease and war. Not a few in the 1930s drew the conclusion that responsibility lay with the antiquated nineteenth century social order known as capitalism, and that the rational reorganisation of society along socialist lines was both possible and necessary.

It comes as no surprise that Einstein was one of them. In his 1949 essay entitled “Why Socialism”, he explained: “Production is carried out for profit, not use. There is no provision that all those able and willing to work will always be in a position to find employment; an ‘army of unemployed’ almost always exists. The worker is constantly in fear of losing his job. Since unemployed and poorly paid workers do not provide a profitable market, the production of consumer goods is restricted, and great hardship is the consequence. Technological progress frequently results in more unemployment rather than in an easing of the burden of work for all. The profit motive, in conjunction with competition among capitalists, is responsible for instability in the accumulation and utilisation of capital which leads to increasingly severe depressions. Unlimited competition leads to a huge waste of labour, and to that crippling of the social consciousness of individuals which I mentioned before.”

Einstein’s conclusion was unequivocal: “I am convinced there is only *one* way to eliminate these grave evils, namely through the establishment of a socialist economy, accompanied by an educational system which would be oriented toward social goals.”

We remain deeply convinced that, as the Trotskyist movement clarifies the long outstanding political issues of the twentieth century—above all, the role of Stalinism—and re-establishes a genuine socialist culture in the working class, the most humane and thoughtful scientists will recognise the natural affinity between science and socialism and dedicate themselves to its establishment.

Sincerely,
Peter Symonds



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