

NOBEL PRIZES : 2022

CHEMISTRY

On October 5, 2022, the Royal Swedish Academy of Sciences announced the award of the Nobel Prize in Chemistry 2022 to **Professor Carolyn R. Bertozzi**, Stanford University, California, USA, **Professor Morten Meldal**, University of Copenhagen, Denmark and **Professor Karl Barry Sharpless**, Scripps Research Institute, La Jolla, California, USA “for the development of click chemistry and bioorthogonal chemistry”. “It just says click – and the molecules are coupled together”, said the Press Release. The Prize money of 10 million Swedish kronor (roughly \$ 917,000) would be shared equally between the three Laureates.

The rewarded work has potential applications in the domains of building drug molecules, polymers, new materials and tracking biomolecules inside cells.



Professor Carolyn R. Bertozzi

Bioactive natural products often possess complex molecular structures. By the twentieth century, chemists were successful in synthesizing a host of such molecules in a stepwise manner. Since one or more undesired by-products are formed in most of the steps in any stepwise synthesis, the target molecule is obtained in very low final yield and its industrial production becomes economically not viable. The Nobel Prize in Chemistry 2022 is being awarded to the trio who developed simple and functional procedures to synthesise complex molecules in the laboratory.

As a way out of stepwise synthesis, around the year 2000 Sharpless conceptualised and developed ‘click

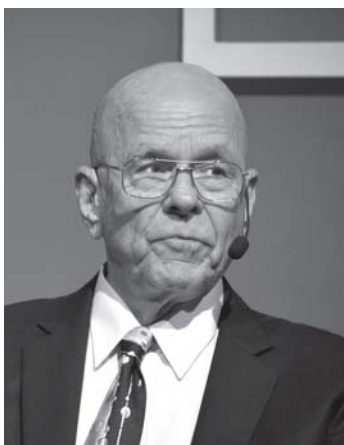


Professor Morten Meldal

chemistry’, in which two different smaller molecules are quickly and effectively connected using nitrogen- or oxygen-bridges in aqueous environment in the presence of oxygen to furnish larger molecules. Consequently, the synthesis of bioactive molecules became considerably quicker and cheaper. Sharpless was awarded his first Nobel Prize in Chemistry in 2001 for this work.

In Denmark, while trying the reaction of an alkyne with an acyl halide containing an azide group in the presence of copper(I) ions and a small amount of palladium, Meldal found out that the alkyne reacted unexpectedly with the azide group, furnishing a 1,4-disubstituted 1,2,3-triazole. He found these copper(I)-catalysed azide-alkyne cycloaddition (CuAAC) reactions general and efficient. Since triazoles are found in, *inter alia*, many pharmaceuticals, dyes and agricultural chemicals, the CuAAC reactions were widely used. Meldal published his findings in 2002 [C.W. Tornøe, C. Christensen, and M. Meldal, *J. Org. Chem.*, 67 (9), 3057-3064 (2002)].

In the same year, Sharpless independently published his success in bringing about CuAAC reactions but using Cu(II) salt and a reducing agent (sodium ascorbate) in *tert*-butanol/water [V.V. Rostovtsev, L.G. Green, V.V. Fokin, and K.B. Sharpless, *Angew. Chem. Int. Ed.*, 41 (14), 2596-2599 (2002)]. In these ideal click reactions, the azide is like a loaded spring and the force is released by the copper



**Professor Karl Barry
Sharpless**

epitome of click reactions.

Glycans are one type of complex carbohydrates that often sit on the surface of proteins and cells and play an important role in many biological processes. In the 1990s, Bertozzi was trying to map a glycan that attracts immune cells to lymph nodes. Her idea was to get cells to produce a modified sialic acid, a component of glycans, with a 'chemical handle' which should be inert enough not to react with other substances in the cells. In 2000, she identified 'azide' as the chemical handle. She then modified the known Staudinger reaction to connect a fluorescent molecule to the azide that she had introduced into the glycans on the cells. She introduced the term 'bioorthogonal' for such chemoselective reactions that occur under physiological conditions without interfering

ion. In CuAAC reactions, the Cu(I) catalyst (generated *in situ*) highly accelerates the reaction, and a wide variety of azides, alkynes and solvents can be used. Besides, the triazoles can be isolated by simple filtration and, since stable, can be used in oxidation, reduction, hydrolysis, etc. The CuAAC reactions became, so to say, the

with, or being affected by, surrounding biological processes.

Bertozzi could not use Meldal-Sharpless click reactions since copper is toxic to cells. She then exploited a decades-old knowledge that azides smoothly undergo cycloaddition reactions with cycloalkynes even in the absence of copper. She fed cells with a modified sugar with an azide (as a chemical handle) on it, incorporated it into glycans. A cycloalkyne (with a fluorescent green molecule sitting on it) was made to click with the azide. This allowed Bertozzi to track the glycans on the surface of cells. In 2004, she published her application of strain-promoted *alkyne-azide cycloaddition* (SPAAC) reactions [N.J. Agard, J.A. Prescher and C.R. Bertozzi, *J. Am. Chem. Soc.*, 126, 15046–15047 (2004)].

Carolyn R. Bertozzi was born on October 10, 1966 in Boston, Massachusetts, USA, got her Ph.D. in 1993 from University of California at Berkeley, CA, USA. Currently, she is Anne T. and Robert M. Bass Professor at Stanford University, CA, USA. Morten P. Meldal was born on January 16, 1954 in Denmark, got his Ph.D. in 1986 from Technical University of Denmark, Lyngby, Denmark. At present he is Professor at the University of Copenhagen, Copenhagen, Denmark. Karl B. Sharpless was born on April 28, 1941 in Philadelphia, PA, USA, earned his Ph.D. in 1968 from Stanford University, CA, USA. Currently, he is W. M. Keck Professor at Scripps Research Institute, La Jolla, CA, USA. □

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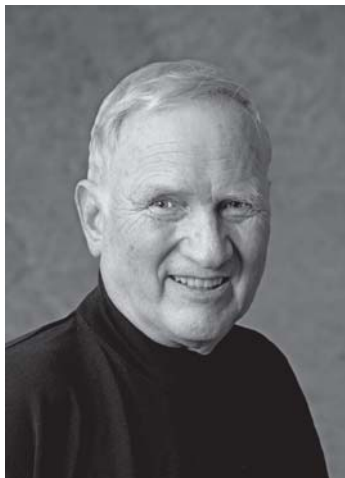
PHYSICS

The Nobel Prize in Physics for the year 2022 has been awarded jointly to Alain Aspect, John F. Clauser and Anton Zeilinger “for experiments with entangled photons, establishing the violation of Bell inequalities and pioneering quantum information science” by the Royal Swedish Academy of Sciences.



Alain Aspect
(Credit: Photo Jean-François Dars)

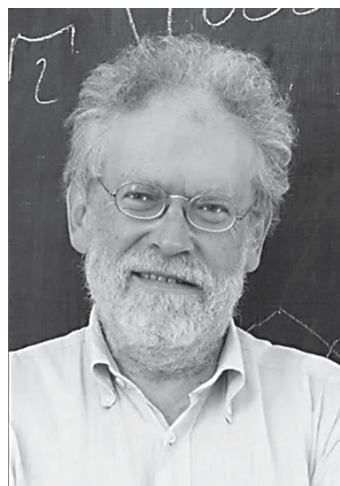
Albert Einstein, Boris Podolsky and Nathan Rosen devised a thought experiment (EPR experiment) to argue that quantum physics is an “incomplete” theory, where a pair of entangled particles were to be separated by a large distance and measurement is to be performed on one of them. If the particles form a singlet (one in up and the other in down spin state) state, and if the measurement of one reveals it to have an up-spin, the other particle, even



John Clauser
(Wikipedia)

Quantum Mechanics differs intrinsically from Classical Mechanics as measurement plays a decisive role in the outcome in the first and is exemplified by various paradoxes (e.g. Schrodinger’s cat). Albert Einstein did not support this view of Quantum Mechanics and notably asked “Do you really believe the moon is not there when you are not looking at it?”. In 1935 if lightyears away, would automatically have a down-spin. Since information of the measured particle had to reach the unmeasured one for it to choose the down spin state it would have to traverse space at faster than the speed of light and hence violate relativity and result in a contradiction. A hidden variable interpretation was proposed to resolve

this perceived incompleteness of Quantum Mechanics. Here one of the pair or particles (say, the left shoe of a pair of shoes) of a definite spin was moved to the first location and the second particle (or the right shoe, say) was moved to the second location without the prior knowledge of the measurer. The measurer determines the first particle and infers of the state of the second particle, however, though the states of the particles were hidden from the measurer, they were predetermined before



Anton Zeilinger
(Wikipedia)

measurement. It was like, out of two balls – one red and one black, each were packed into two identical boxes by a blind person and sent to two locations. Unknown to the measurers, predetermined coloured balls were sent to them, and the measurement of the black ball in first location, automatically determined the colour of the second ball, and no information needed to be

transmitted from one measurer to the other. John Stewart Bell in a 1964 represented this hidden variable theory in an inequality. Various versions of the Bell type inequality grew over time and one of which was the CHSH (Clauser Horne Shimony Holt) inequality developed by John Francis Clauser and his collaborators which involved an entangled pair of photons. A violation of the CHSH inequality, as has been observed, implied that it was the act of measuring and not the hidden variable which affects the outcome. That would imply that colour of the balls in each of the two boxes were a combination of black and red states, and the determination of the colour of the ball in one of the boxes automatically collapses the states of the other ball to the other colour, no matter how separated they are. In other words the states of the particles are non-determinable (exist in mixed states) prior to measurement and nonlocal (properties of entangled particles would be linked to each other even if they are at space-like separations, i.e. spatial separation which cannot be traversed by light in the prescribed time).

Alain Aspect (b 1947, Agen, Lot-et-Garonne, France), is a professor at the École Polytechnique. He removed the loopholes from CHSH (Clauser Horne Shimony Holt) version of Bell Inequality. in particular by closing a form of the locality loophole and also worked on laser cooling of neutral atoms, generating Bose–Einstein condensates.

John Francis Clauser (b 1942, Pasadena, California, USA) of J.F. Clauser & Assoc. and a physicist at the University of California, Berkeley, Lawrence Berkeley National Laboratory, and Lawrence Livermore National Laboratory, USA.

Anton Zeilinger (b 1945, Ried im Innkreis, Austria) is a professor emeritus in physics at the University of Vienna

is a senior scientist at the Institute for Quantum Optics & Quantum Information, Austrian Academy of Sciences, and is the vice chairman of the trustee board of Institute of Science & Technology, Austria. □

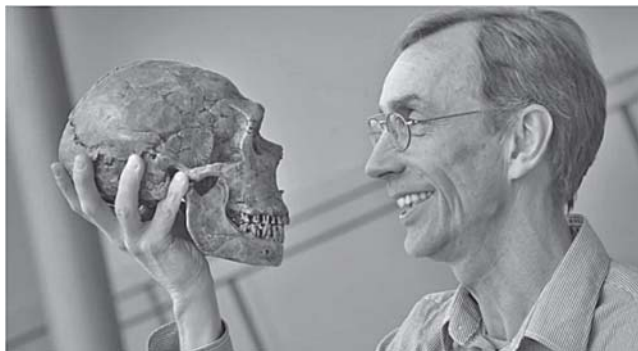
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1. Nobelprize.org
2. Wikipedia

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PHYSIOLOGY OR MEDICINE

Svante Pääbo from the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany was awarded the Nobel prize in physiology or medicine for the year 2022 “for his discoveries concerning the genomes of extinct hominins and human evolution”.



The Neanderthal within us: Svante Pääbo holding the skull of a Neanderthal.

Pääbo was born in Stockholm, Sweden in 1955 and developed there with his mother, Karin Pääbo (1925–2013), who was an Estonian chemist. Karin Pääbo, migrated to Sweden as a refugee to escape the Soviet invasion in 1944 during World War II. Pääbo grew up as a native Swedish speaker and earned his PhD from Uppsala University in 1986 for research in understanding how adenovirus E19 protein regulates the immune system. After a brief stint as a Postdoctoral fellow at the Institute for Molecular Biology II, University of Zurich, he moved to University of California, Berkeley to join Allan Wilson’s lab to work on the genome of extinct mammals. After three years he returned to Europe to join as a professor of general biology at the University of Munich. In 1997 he became founding director of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany. Pääbo and his colleagues reported their successful sequencing of Neanderthal mitochondrial DNA (mtDNA), originating from a specimen found in Feldhofer grotto in the Neander valley (*Cell*, 90,19-30, 1997). Thereafter, Pääbo’s department published discoveries about the “language gene”, FOXP2, which is mutated in some individuals with language disabilities (*Nature neuroscience*, 19, 1513-1522, 2016). In 2007, he was named one of Time magazine’s 100 most influential people of the year. In 2010, he published the

first Neanderthal genome sequence in the journal *Science* (328,710-722 and 2010). DNA sequences from Neanderthals were also found to be more similar to sequences from contemporary humans originating from Europe or Asia than to contemporary humans originating from Africa, suggesting interbreeding between Neanderthals and *Homo sapiens* during their coexistence.

During Covid-19 pandemics, Pääbo determined that more severe influences upon sufferers of the COVID-19 disease, including the vulnerability to it and the incidence of the necessity of hospitalisation, have been associated via DNA analysis showing genetic variants at chromosomal region 3, are associated with European Neanderthal heritage.

The ancient genomes “allow us to understand what makes humans,” says Johannes Krause, a student of Pääbo. Comparing modern and extinct human lineages has given scientists new understandings into autism, brain development, nicotine addiction, and the immune system’s response to COVID-19 and other diseases, he notes. “It will probably take us a few more years to figure them all out,” Krause says. “But it will enable us to understand what makes us so special.” Dr. Pääbo’s research has resulted in the rise of a new scientific discipline called Paleogenomics, which is the study and analysis of genes of ancient or extinct organisms.

Dr. Pääbo has been honoured with numerous awards to name a few: Gottfried Wilhelm Leibniz Prize (1992), Max Delbrück Medal (1998), Louis-Jeantet Prize for Medicine (2005), Pour le Mérite (2008), Kistler Prize (2009), Great Cross of Merit with star (2009), Gruber Prize in Genetics (2013), Lomonosov Gold Medal (2014), Foreign Member of the Royal Society (2016), Breakthrough Prize in Life Sciences (2016), Keio Medical Science Prize (2016), Princess of Asturias Award (2018), Darwin–Wallace Medal (2019), Japan Prize (2020), Massry Prize (2021). □

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ECONOMICS

The Royal Swedish Academy of Sciences has awarded the Nobel Prize in Economics 2022 (The Sveriges Riksbank Prize in Economic Sciences in Honour of Alfred Nobel) to three American economists, Ben S. Bernanke of the Brookings Institution, Douglas W. Diamond of the University of Chicago, and Philip H. Dybvig of Washington University in St Louis, for their research on banks and financial crises. Bernanke was a practicing banker and was earlier chairman of the U S Federal Reserve and the other two are pure academicians. They have done foundational research on the role of banks in the economy, particularly during financial crises. The laureates have significantly improved our understanding of the role of banks in the economy, particularly during financial crises. Their insights have improved our ability to avoid both serious crises and expensive bailouts.



Ben Bernanke

Diamond and Dybvig developed theoretical models to explore the role banks play in the economy and why they are vulnerable to bank runs. They presented a theory of *maturity transformation* and showed that an institution using demand deposits to finance long-term projects is the most efficient arrangement, but at the same time, this arrangement has an inherent vulnerability leading to the possibility of bank runs. Diamond developed a theory of a bank's provision of *delegated monitoring* services and showed that banks can ensure that projects with high (but risky) long-run returns and obtain funding by monitoring borrowers on behalf of lenders. Their research provided logically consistent mathematical models, where the existence and structure of banks were derived rather than assumed. By providing formal models based on microeconomic foundations, the key assumptions and economic mechanisms were laid bare. This in turn enabled others to later modify and extend the ideas. This approach is entirely new to understand the functioning of the banks and explained their fundamental role in society. Ben



Douglas Diamond

Bernanke addressed the same questions through empirical research taking the cue from the Great Depression of the 1930s, the longest deepest economic downturn in the recorded history and put it as a documentary evidence for empirical foundation and uncovered the importance of the credit channel for the propagation of the depression in a global scale as the bank run was contagious. He showed, how the bank failures destroyed valuable banking relationships, and the resulting credit supply contraction left significant scars in the real economy. While earlier economists viewed bank failures merely as a consequence of the downturn, or mattering to the rest of the economy only by contracting the money supply, rather than directly damaging investments through severed credit arrangements. Thus, Bernanke's work was not only relevant for understanding the Great Depression, but also more generally for providing evidence on the



Philip Dybvig

critical role of banks in the economy. The theoretical and empirical findings of Bernanke, Diamond, and Dybvig thus reinforce each other. Together they offer important insights into the beneficial role that banks play in the economy and how their vulnerabilities can lead to devastating financial crises. The findings have proven extremely helpful for central banks and other financial regulators to take appropriate and timely action through rational policies.

The work, why banks are simultaneously precious and fragile, for which Bernanke, Dybvig and Diamond are

now being recognised has been crucial to subsequent research that has enhanced our understanding of banks, bank regulation, banking crises and how financial crises should be managed. Their suggestions were found invaluable and effective in steering the U S and the global economic systems during the 2008-2009 economic crisis

and the coronavirus pandemic down swings in 2020-2021. □

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LITERATURE

'The Frozen Woman': The Fiction of Annie Ernaux



Central to our modernity is the issue of memory in situating the self between the personal and the political. To what extent does memory fashion the self? How do we look at memory? What are the prose styles through which memories are narrated? How does the individual make sense of itself as implicated in the historical? How does the postmodern author use the elements of popular culture to critically interrogate the relationship between the self and commodification? The writings of Annie Ernaux straddling the borders between autobiography, memoir and fiction explore these questions with a startling sparseness.

Born in Lillebonne in Normandy, Ernaux was a child of working-class parents who ran a café and a grocery shop. The struggles of her childhood and her almost Joycean desire to escape from her situation were to be later reflected in her early fictions. She left in 1960 for London where she worked as an *au pair*. She returned to France and qualified as a school teacher, subsequently earning a higher degree in modern literature. Her status as an academic offered her interesting perspectives in experimenting with different narrative traditions. She was a professor of literature for 23 years and is presently 82 years of age.

Ernaux's first novel *Cleaned Out* (1974) used the dominant trope of the memoir that she has used subsequently. She won initial renown for her second novel *A Man's Place* (1984) which deals with the details of her relationship with her father, her stepping into adulthood and leaving her hometown. The major gulf between her

intellectual life and her inability to relate to her erstwhile life with her parents is narrated with a rare complexity and sensitivity.

Ernaux's subsequent works also drew upon her own experiences as an adult woman growing up in a France undergoing significant flux. Her next major fiction *Simple Passion* rendered the details of a torrid affair with a Soviet diplomat. Ernaux dispassionately revisits the affair referring to it as a "cascade of deceptions" which is merely an "erotic parenthesis in his life". Subsequent novels dealt with the trauma of an abortion and her mother's fight with Alzheimer's. The narrative mode through which she revisits these traumas is unsentimental and rarely ironic.

Ernaux's tour de force was her 2008 memoir *Les Années* (*The Years*). Spanning almost 70 years this novel records the movement of the French society from the late 1940's to the early twenty first century. Ernaux used the third person to dispassionately situate a woman at the centre of the narrative and draw out a sociological analysis of French society. *The Years* has been compared in its use of memory to the works of Michael Proust with its record of hope, disillusionment, politics, marriage and combines elements of popular culture including advertisements and popular slogans. Ernaux notes how modern man evolves in his use of technology and consumerism, the use of the contraceptive pill and subsequently the use of the landline, the television and finally the personal computer. Edmund White draws attention to Ernaux's peculiar use of the autobiographical mode not as an individual narrative but the story of a collective:

This is an autobiography unlike any you have ever read; you might call it a collective autobiography. Ernaux certainly isn't a Marxist, but at the same time she sees history as sociological and the economy as determinative. *The Years* is an earnest, fearless book, a *Remembrance of Things Past* for our age of media domination and consumerism, for our period of absolute commodity fetishism. Ernaux for example describes a series of photographs, revisiting every memory, lingering over the words, yet devoid of any nostalgia or melodrama.

The novel was nominated for the International Booker Prize in 2019.

Ernaux's uniqueness lies in her unsentimental narrative style, foregrounding memory but never romanticising it. Her narrators are austere and analytical, looking for a tone

of impersonality rather than intimacy. Her prose has often been termed ‘plain – scraped clean’. This austerity can also be located in her novel *Happening* (2001) where she refers to her abortion: “Sex had caught up with me, and I saw the thing growing within me as a stigma of a social failure”. Her account of her father in *A Man’s Place* is stark in its admission that it contains “no lyrical reminiscences, no triumphant displays of irony”. Margaret Drabble refers to her as the inheritor of Simone de Beauvoir’s tradition of “the chronicler to a generation”. In an interview Ernaux recollected, “This neutral way of writing comes to me naturally; it is the very same style I used when I wrote home telling my parents the latest news”. As Madeline Schwartz points out:

In this attempt at unearthing, her prose combines the spare and the unsparing. She seems desperate to put it all on the page: period, blood, abortions, contraceptive pills, dirty underwear, erections and semen. But Ernaux’s writing is rubbed down, simple, almost clinical in its exactness ... as if she were a detective cracking an unsolvable case; the mystery of her own past. Central to her work is an awareness that the most intimate moments of life are always governed by the circumstances in which they occur – that probing the personal will also involve investigating the historical.

Ernaux remains one of the most powerful voices of the present age, more so because she has chronicled the change in the condition of women through the twentieth century and beyond. Ernaux has used both her memory and her pen as a weapon to radically interrogate the struggles of women. Ernaux’s rather prosaic account of female sexuality resists the stereotyping patterns of prose through which the erotic emotions of the woman are often narrativized. As a voice of women’s liberty, Ernaux has steadfastly campaigned against the Iranian crackdown

based on the compulsory hijab law. She has also been an outspoken critic of the Israeli oppression against the Palestinians.

Ernaux was awarded the Nobel Prize in Literature in 2022 “for courage and clinical acuity with which she uncovers the roots, estrangements and collective restraints of personal memory”. □

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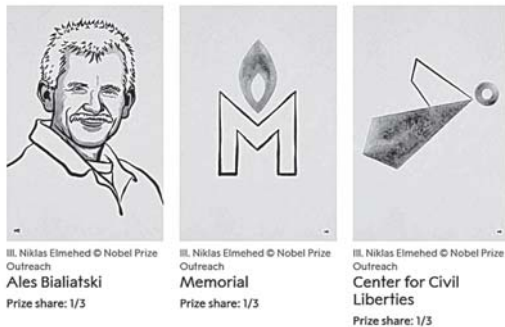
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PEACE

Nobel Peace Prize 2022: Fight for Rights is Awarded

The 2022 Nobel Peace Prize has been awarded to human rights advocate Ales Bialiatski from Belarus, the Russian human rights organisation *Memorial* and the Ukrainian human rights organisation *Center for Civil Liberties*. It has been argued by the *Swedish Nobel Academy* that “The Peace Prize laureates represent civil society in their home countries. They have for many years promoted the right to criticise power and protect the fundamental rights of citizens. They have made an outstanding effort to document war crimes, human right abuses and the abuse of power. Together they demonstrate the significance of civil society for peace and democracy.”

The Nobel Peace Prize 2022



The recognition of human rights and civil liberties is very significant. While awarding the persons and the organisations who are fighting tooth and nail for protecting the civil liberties and human rights in their home countries the *Swedish Nobel Academy* emphasized the importance of rights and liberties for prevailing peace in any geographical space, be it in any individual country or in the world on a whole. The *United Nations General Assembly* on December 10, 1948 adopted the *Universal Declaration of Human Rights*. This declaration is an epoch-making one. It unequivocally proclaims the inalienable rights that everyone is entitled to as a human being, regardless of race, colour, religion, sex, language, political or other opinion, national or social origin, property, birth or other status. Remembering this significant day, the *Human Rights Day* is observed on 10th December in all over the world.

The significance of protection of human rights is ever increasing. Though we live in a democratic world, the people in power in different parts of the globe are reluctant to listen any criticism of their role. Authoritarian attitude

can be noticed almost everywhere. The fascist mentality of the people in power can be resisted through upholding democratic rights.

We have a rich heritage of upholding the human rights. In 1689, the *Bill of Rights* was declared in England after the occurrence of the *Glorious Revolution* (1688). During the *French Revolution* (1789) the *Declaration of the Rights of Man and Citizen* was adopted by the *National Constituent Assembly* on August 26, 1789. It was categorically stated in the Declaration that “men are born free and equal in rights”. In 1815, the Declaration against slave trade was made as a part of the *Vienna Congress*, which is considered as a landmark in the history of human rights. The *Chartist Movement* of 1836 which took place in England was the first mass movement driven by the working class. The essential goals of the movement were universal manhood suffrage, equal electoral districts, vote by ballot, annually elected Parliaments, payment of members of Parliament and abolition of the property qualifications for membership. These goals can be regarded as the factors for protecting democratic rights. Basically the Movement declared the ideal of sovereignty of the people. Thus it is an important step towards the movement for getting the human rights.

In India, the first organisation for civil liberties was formed as early as in 1936. On August 24, 1936 the *Indian Civil Liberties Union* was formed. The president of the Union was Rabindranath Tagore. The human rights activist and historian Siddhartha Guharay has rightly pointed out that this Union can be considered as the forerunner of the human rights activism in our country. The persons like Rammanohar Lohia, Jawaharlal Nehru, Sarojini Naidu and K.B.Menon were associated with this initial civil liberties movement. In its inaugural meeting Nehru said, “The idea of civil liberties is to have the right to oppose the government”. Lohia wrote the book *The Struggle for Civil Liberties*. Rabindranath was also one of the pioneers of *League Against Fascism and War* (1937), which spoke for rights of people against fascist power. In 1948, after the independence of India, another rights organisation, namely *Civil Liberties Committee* was formed to resist the state atrocities. At that time the state power ruthlessly treated the Communist activists as they spoke for a greater freedom. The persons who formed the Committee was the intellectuals of West Bengal. It is worth-mentioning that the most prominent of them was scientist Meghnad Saha. Persons like Saratchandra Bose and Kshitishprasad

Chattopadhyay also deserve mention. In 1949 a *Civil Liberties Conference* was held in Madras on July 16-17. The major association of the rights activists of our country the *Association for the Protection of Democratic Rights* (APDR) has observed its golden jubilee in 2022, which was established on June 25, 1972 under the leadership of Kapil Bhattacharya, Pramod Sengupta, Amiyo Bose and others. However the present situation is not very sunny as a number of rights activists had to face wrath of the people in power. They are detained in custody citing a number of pretexts. Thus, the recognition of rights activists in this situation has become more relevant now.

In 2021, the theme of the Human Rights Day was *EQUALITY - Reducing inequalities, advancing human rights*. It is noteworthy that the theme brings us the basics of the human rights as we have mentioned that the 1789 *Declaration of the Rights of Man and Citizen* emphasized the point that “All human beings are born free and equal in dignity and rights.”, which has been mentioned in the Article 1 of the *Universal Declaration of Human Rights* (1948). Undoubtedly, the principles of equality and non-discrimination are at the heart of human rights. Equality is aligned with the *2030 Agenda* and with the UN approach

set out in the document *Shared Framework on Leaving No One Behind: Equality and Non-Discrimination at the Heart of Sustainable Development*. This includes addressing and finding solutions for deep-rooted forms of discrimination that have affected the most vulnerable people in societies, including women and girls, indigenous peoples, people of African descent, LGBTI people, migrants and people with disabilities, among others. Equality, inclusion and non-discrimination, in other words, a human rights-based approach to development, is the best way to reduce inequalities and resume our path towards realising the *2030 Agenda*. Thus, this year’s Nobel peace prize is not to be seen as the recognition of few persons or organisations. It has a far-reaching impact as it recognises the fight for rights to form a world that should be free from inequality in each and every respect. □

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