

What Does the "redshift" Phenomenon Indicate?

Commenting once again on "Big Bang Cosmology"

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(Abstract) Hubble's theory that the universe is moving is a revolution, which broke the attempt of Einstein to stop the universe model. Modern Big Bang cosmology believes that all the movement of the universe is chaotic or that "this movement is the movement of the universe". Modern scientific observations show that different hierarchical structures and different stages of evolution determine different forms of motion and laws of motion of the universe, which may also cause different redshift quantities in the universe. We should use dialectical materialism to select and study the phenomenon of redshift.

The phenomenon of spectral line shift of celestial bodies was discovered in the last century. Since this century, the observed displacement phenomenon has become more and more complicated. For example, the inner celestial bodies have redshifts, but the outer celestial bodies also have redshifts. Most of them are "redshifts", but there are also "blueshift". The amount of redshift varies from small to large. The nature of the redshift phenomenon has become the biggest "mystery of the universe" [*trans* “宇宙之谜”] in modern astronomy. "Big Bang cosmology" has always regarded the redshift phenomenon as the most basic observational fact. No matter what new situation appears, it is all forced into the framework of the cosmic explosion [*trans* big bang]. Is the redshift phenomenon, especially the various new discoveries about this phenomenon, supporting or undermining Big Bang cosmology? We have touched upon this issue in the previous article¹ and are going to discuss it further here.

The Sky is Moving

The displacement of spectral lines found in spectral analysis has been a shock to the theory of cosmic immobility since the beginning. The method of spectral analysis was invented in the 19th century. Spectral analysis shows that when the spectrum of a star is compared with the spectrum of the same element on Earth, the position of the spectral line always shifts a little, some shifting to the red light side and some shifting to the blue light side. This is the phenomenon of redshift and blueshift.

Why does this phenomenon occur? According to the Doppler principle [*trans* Doppler Shift], when the light source moves away, the distance increases, the light wave also increases, the frequency decreases, and the spectrum line deviates to the red end. Conversely, when the light source approaches, the distance decreases, the light wave also decreases, the frequency increases, and the spectrum line deviates to the blue end. This principle is used to explain the displacement of the star spectrum. Red shift means that the star is moving away from us, and blue shift means that the

¹ Li Ke: What does the appearance of 1,000-ton microwave radiation indicate? - A review of "Big Bang Cosmology", published in "Journal of Natural Dialectics" No. 1, 1973, p.35

star is moving towards us. This is similar to how sound source has a lower pitch when it moves away from us and a higher pitch when it moves towards us. This is the initial understanding of the phenomenon of the movement of star spectrum lines.

In ancient scholastic philosophy, the earth is the eternal and static center of the universe. Recently, Modern astronomy has launched an attack on this theory of the immobility of the universe since its inception. Copernicus fired the first shot with his *On the Revolutions of the Celestial Spheres*. He proved that the earth moves like other planets - it orbits the sun at a speed of about 30 kilometers per second, and is not the eternally static center of the universe at all. However, Copernicus's theory of the revolutions of the celestial bodies was not thorough, and he stopped in front of the stars. Newton further regarded the sun as the static center of the universe, and the stars were always embedded in the celestial sphere, and even the planets could only circle around the sun along their unchanging orbits. Astronomy had just taken a step forward, but it fell into the quagmire of stale traditional prejudices.

In the 19th century, Herschel systematically studied the horizontal motion of stars, that is, the motion of stars in a plane perpendicular to people's line of sight. This motion is called the "proper motion" of stars. However, stars cannot have only lateral "proper motion", but also longitudinal motion, that is, motion along the direction of people's line of sight. This kind of motion approaching or moving away from the earth cannot be seen with a telescope alone. Now, the displacement of spectral lines under the spectroscope has revealed this hidden movement and more comprehensively demonstrated the "proper motion" of stars.

If Copernicus' "celestial motion" only referred to the motion of planets at that time, it has now been expanded to the motion of stars including the sun. Later, it was known that the sun is not only not the eternal and immovable center of the universe, but also not the center of the Milky Way, but is located on the side, orbiting the center of the Milky Way at a speed of 250 kilometers per second. In the Milky Way, "things change and stars move", whether it is redshift or purple shift, all reflect such "star shift", reflecting the endless movement of stars. This is the first victory of the theory of celestial motion over the theory of the immovability of the universe.

However, the struggle did not end there. At the beginning of the 20th century, people's vision went beyond the world of stars and expanded to the world of galaxies outside the Milky Way. Are these larger-scale celestial bodies moving? Some people stopped here again. They either believed that the Milky Way was the entire universe, and of course there was no movement, or they believed that the Milky Way was the largest spiral nebula in the universe and the eternal and immovable center of the universe. Einstein systematized these traditional prejudices into a "cosmological principle" that the universe is static.

According to this principle, he established a static "cosmic model", that is, a four-dimensional curved spherical closed space. This universe, in simple terms, is

like what someone later compared to "a soap bubble with condensed particles on the surface."² In such a "model", although the earth and stars can move, they are all local, temporary, and accidental. The larger the celestial body, the more static it tends to be and the less it moves. The so-called "cosmology" in the West has always taken the theory of the immobility of the universe as its most basic philosophical premise from the beginning.

The development of science must always break through the shackles of idealism and metaphysics and open up a path for itself. The redshift of extragalactic galaxies not only shows the movement of the Mohist system [*trans* Galaxy; refers to Moxi, a metaphysical philosopher], but also once again challenges the theory of the immobility of the universe.

Since 1912, astronomy has successively discovered that the spectral lines of spiral nebulae are mostly shifted, and the redshift is much larger than that of stars. Later, it was discovered that most of these nebulae are Mohist systems [*trans* Galaxies] outside the Milky Way system. The shift of the spectral lines of stars shows star movement, but what about the redshift of galaxies? Naturally, people first thought that the redshift of extragalactic galaxies might reflect their recession motion with respect to the Milky Way, just like stars.

In 1929, Hubble estimated the distances of 24 extragalactic galaxies from the Milky Way based on their luminosity, analyzed their spectral line shifts, and summarized an empirical formula for the relationship between the recession speed of extragalactic galaxies and their distance, that is, the speed is proportional to the distance. The farther the galaxy is from the Milky Way, the faster the recession speed and the greater the redshift. Therefore, the redshift indicates the recession speed, which is the "speed of the redshift". That is to say, the redshift phenomenon of the spectral lines of extragalactic galaxies is relatively common, reflecting that they are all flying in all directions.

Hubble's law is an achievement in the development of astronomy. It reflects the regularity of the movement of extragalactic galaxies within a certain range and under certain conditions. It shows that the earth is moving, the sun is moving, and the galaxies are also moving. The Milky Way is also constantly moving, with both rotation and proper motion. It is just an ordinary galaxy, neither particularly large nor the eternal and immovable center of the universe. "The great instrument rotates, the sky turns and the earth turns", The Big Dipper turns and the stars fly. "The sky is far away" and there is no quiet land anywhere. [*trans* The original claim is that] the larger the celestial body is, the more static it tends to be. Instead, it becomes less and less static. The Earth moves relative to the Sun at 30 kilometers per second. The Sun moves relative to the center of the Milky Way at 250 kilometers per second. According to Hubble's law, the relative motion between galaxies can be as large as tens of thousands of kilometers per second. Where is the overall static trend?

2 Jeans: 'The Mysterious Universe', Chinese translation, 1933, p. 112.

Einstein's idea of establishing the static universe model is that we know from experience that for a properly selected coordinate system, the speed of the stars is quite small compared to the speed of light. Therefore, if we regard matter as static, we can draw a conclusion about the nature of the entire universe at a rough approximation.³ Now, the speed of galaxy movement can be completely comparable to the speed of light, and his universe bubble has vanished. Einstein had only one way to admit defeat: "The real universe is not stationary"⁴

Engels said: "All motion contains a greater or lesser part of mechanical motion, that is, position shift, and understanding these mechanical motions is the first task of science." (Dialectics of Nature). Motion is absolute. Where there is motion, there is relative motion between celestial bodies. Understanding this kind of motion is just a beginning, and an important beginning. The redshift phenomenon reveals this kind of motion everywhere and destroys the static center everywhere. This is another new victory of the theory of celestial motion over the theory of the immobility of the universe. Astronomy is also a study of celestial motion, a struggle between the theory of celestial motion and the theory of the immobility of the universe. Copernicus just made a beginning. He only wrote the theory of the motion of the earth. The phenomena of proper motion and redshift continued to write the theory of the motion of the stars and the theory of the motion of galaxies. This is the continuation of the astronomical revolution started by Copernicus.

Movement is Multifaceted

Hubble's law says that the movement of extragalactic galaxies is "velocity redshift", which reflects the mechanical motion state of galaxies, that is, the relationship between the spatial position of galaxies and the speed of position movement. Is this the only essence of the redshift phenomenon? Hubble did not say it absolutely at that time. He only said that this law "expresses a primary approximation within a limited distance range."⁵ This is correct. The displacement of spectral lines is a very complex phenomenon. Behind it, there are many kinds of factors hidden, showing a complex nature. The position and speed of mechanical movement are only one factor affecting this displacement, not all factors. The Big Bang cosmology takes a partial view and exaggerates it into all factors, which will inevitably turn this relative truth into something absurd.

The development of science has continuously shown that various different forms of motion at different levels of material structure will have different effects on spectral lines.

3 Einstein: 'A Brief Introduction to the Special and General Theory of Relativity', Shanghai Kezhong Technology Press, 1964, p. 94.

4 Einstein, de Sitter: "On the Relationship between the Expansion of Physics and the Mean Density," Proceedings of the National Academy of Sciences of the United States of America, vol. 18, p. 213, 1932.

5 Hubble: "The Relationship between the Distance and the Radial Velocity of Extragalactic Nebulae", Proceedings of the National Academy of Sciences of the United States of America

Single atoms of the same element have basically the same spectral lines, but different isotopes can cause mass displacement, body displacement, structural displacement, etc. of spectral lines because of different masses, volumes, and structures of the atomic nuclei. The effect of the radiation field on electrons will also cause a redshift.⁶

The atomic spectra of the same element are basically the same, but the spectral lines of each atom also have different displacements. Different atoms have different speeds of movement, which causes velocity displacement, which is only one of the factors. In addition, the positions of atoms in the electric and magnetic fields are different, and the strength of the electric and magnetic fields they are subjected to is different, so the spectral lines have different displacements. The pressures on atoms due to the interaction are different, and the displacements are also different. Even if all these known effects are removed, the spectral lines still have a displacement of a few billionths, and there is still a certain "natural width" caused by the quantum effects in the microscopic field. This is called "natural displacement." "Nature" means necessity, that is, there is still a small kingdom of necessity that people have not yet fully understood.

In the celestial system, first in the solar system, the strong gravitational field of the sun has an impact on the solar spectrum, which can directly act on the emitted photons, causing the energy of the photons to be lost, causing the red shift of the spectrum lines of various elements on the sun. This shows that in addition to a change in speed, the gravitational field can also directly affect the wavelength and frequency of photons, causing gravitational red shift.

When the telescope extends further to the entire Milky Way and even the vast galaxy world outside the Milky Way, people find that the gravitational field has a very limited impact on the spectral lines of stars and galaxies, and the gravitational red shift is negligible. This is actually very natural. In the microscopic world, the deeper you go into the structure of matter, the weaker the effect of the gravitational field is, and the more it is replaced by the effect of the electromagnetic field and the strong and weak interactions of the nuclear field. Matter is infinitely divisible, and its forms of motion and interaction are infinitely diverse. This is true in the microscopic world, and it is also true in the so-called "cosmic" world. The effect of any specific form of motion is limited, not infinite. In the solar system, the effect of the gravitational field is very significant and is the main form of motion in this celestial system. However, in the solar system, some of its phenomena, such as the vortex and the rotation of the galaxy, cannot be fully explained by the gravitational field alone. As for the wider galaxy world outside the Milky Way, humans have almost no understanding at all. But at least it can be said that the gravitational field is even more insufficient, and new forms of material motion are inevitable. The infinite divisibility of matter is manifested in the inexhaustible hierarchical structure of the universe in the cosmic

⁶ Lamb: 'The fine structure of the hydrogen atom obtained by the microrotation method', Physical Review, 1947, Vol. 72, p. 241.

world. Every time a new level is entered, new forms of motion and new laws of motion will appear. The development of astronomy will inevitably expand to larger celestial systems and discover more forms of motion. How can the gravitational field be omnipresent and encompass the entire universe?

Big Bang cosmology is self-contradictory. It admits that the gravitational field is weakened in larger celestial systems, so the movement of the solar system can only be the discrete mechanical movement of the solar system. However, the movement of galaxies is the result of the gravitational field, which makes the gravitational field an all-embracing ultimate cosmic field. Newton's gravitational theory regards universal gravitation as the only interaction between celestial bodies, which is a cosmic field of this type. Einstein's four-dimensional static universe has been slightly modified, adding an effect roughly equivalent to "universal repulsion", but it is still an all-embracing cosmic field. The universe of the Big Bang still inherited such a field, but due to some unknown "disturbance" [*trans* sometimes referred to bourgeois physicists as "dark energy"], it has always expanded evenly. Therefore, the universe has become a disk of scattered stars, and the galaxies are like condensation points on soap bubbles, scattered on this huge sphere. Expansion, that is, the scattering of galaxies, has become a unique movement of these "basic celestial bodies" in a unique cosmic field. The redshift of the outer galaxy can only be a uniform redshift, which can only be a "cosmological redshift" determined by this unique movement.

However, the fact of redshift does not completely comply with this "cosmological redshift". Among the 24 galaxies that Hubble originally based his theory on, 5 of them were blueshifted, not redshifted.⁷ The basis of "cosmological redshift" was shaky from the beginning. Later, it was discovered that our Milky Way and some nearby galaxies may form a "Local Group". There are about 20 galaxies here. Most of them are blueshifted, a few are redshifted, and some are basically not shifted⁸. You said that the universe expands in units of galaxies, but this does not work in the Local Group.

Of course, these galaxies are very close to our Milky Way, and the spectral line shift is very small, so it is difficult to explain anything. But at least, from the perspective of the Local Group, there is no "cosmic expansion" inside the galaxy group. In this case, the "basic celestial body" is not a galaxy, but should be upgraded to Mohist [*trans* Galaxy] groups. In Newton's view, the "basic celestial body" is a house. In Einstein's view, the "basic celestial body" is replaced by a star. In the Big Bang universe, the "basic celestial body" is further enlarged to a galaxy. It seems that this is not enough and needs to be enlarged again. If we say that in the microscopic world, the 'basic' particles are not basic, the microscopic structure of matter can never reach the bottom, and there is never a lowest level. Then, in the cosmic world, shouldn't it

7 H., "Relationship between distance and radial velocity of extragalactic nebulae," Proceedings of the National Academy of Sciences of the United States of America, 1919, Vol. 10, p. 168. Translation appears on p. 155 of this issue

8 John Brandt: The Physics and Astronomy of the Sun and Stars, 1966, USA edition, p. 74.

be said that the 'basic' celestial bodies are not basic either, and the cosmic structure of celestial bodies can never reach the top? With the progress of human cognition, the 'basic celestial bodies' will continue to upgrade, and there will be no end.

Birds of a feather flock together. There is no difference between heaven and earth. The cosmic world is the same as the microscopic world, which is an endless sequence of material structures. The hierarchical structure mentioned in dialectics is not a mechanical stacking of celestial bodies. Any specific form of motion, whether it is the gravitational field or any other field, always has a limited range of action. At a new level, quantitative changes lead to qualitative changes, and new forms of motion and new laws of motion will appear. They will inevitably have various effects on spectral lines, causing various local displacements. The universe does not have the highest unified level, there is no unified cosmic space, and there is no unified and universal "cosmological redshift".

If the cosmos has a hierarchical structure, there will be no absolute uniformity and homogeneity of the entire universe. Uniformity and sameness are always relative, while unevenness and difference are absolute. In recent years, it has been discovered that from the perspective of our earth, galaxies in different celestial directions have different aggregation states. For example, according to some observations, the main redshift of spiral galaxies in the eastern hemisphere is smaller, while the redshift of galaxies in the western hemisphere is larger.⁹ Why are the redshifts of galaxies in different regions so obviously different? If they are all velocity redshifts, why is this big bubble so crooked when it expands so much? If it is said that the different motion forms of different spatial structures of the universe affect the redshift, isn't it more reasonable than the unified velocity redshift of the unified space? If we say that electric field, magnetic field and pressure can affect atomic spectral lines, and gravitational field can affect spectral lines on the sun and the earth, then how can we say that there are definitely no new objects, new fields, or new spectral lines in the new cosmic level?

What about new forms of motion? How can we say that they will not cause local redshift of galaxy spectral lines? When the photons of the extragalactic anti-system pass through this uneven and concave window space, will the different spatial structures cause some changes in the photons? In the world, there is nothing that is unchanging. Everything is developing and changing. In the long journey of photons, there may be obstacles and traps. There may be some form of "black hole gas". There may also be some form of "worm hole". There may be "accelerators" and "decelerators". There may be convex lenses and concave lenses. It has passed through thousands of temples, thousands of heavens, thousands of difficulties and dangers. How can we say that there will be no changes? How can we say that this change will not affect the wavelength and frequency, thereby causing the spectral line shift? The

⁹ Rubin et al. observed 50 representative Tivoli systems. The redshift of 28 in the eastern hemisphere was about 0.0183-0.0167, and that of 20 in the western hemisphere was 0.02-0.02°. There was a significant difference between the two. See Thomson: 'What a mess, what a mess!' (Astronomy Tribune, 1973, Vol. 140, No. 114)

specific mechanism of this change and the specific material form that causes this change are for science to further explore. But how can we say that mankind has exhausted the understanding of this redshift phenomenon and can only continue to add new perspectives based on Hubble's law? Is it enough to just measure the evidence and continue to calculate the Hubble constant more accurately? If it is said that in the atomic spectrum on the earth, which has been studied so deeply, there are still "natural displacements" that are not yet known, then how can it be said that there must be no "natural displacements" other than velocity redshift and gravitational redshift in the displacement of galaxies outside the Milky Way? If it is said that people have not yet fully understood the atomic spectrum on the earth, then how can it be said that people have exhausted their understanding of the galaxy spectrum or even the celestial spectrum of the entire universe?

Engels said: "Understanding these mechanical movements is the first task of science, but it is only its first task. But these mechanical movements do not include all movements." (The Dialectics of Nature). In the universe of the Big Bang, the universe is constantly exploding in all directions, and only the mechanical movements that disappear are scattered. Mechanical movements always have a starting point and always explode from a point. Later, no matter how big this point expands, it is still a point, still a center of the universe. Although the galaxies inside are constantly moving, they are all spreading out at the same acceleration, and the center will not move at all. This is still the center of the universe that is always still. This is the same as Newton's universe. It is exactly the same. Although the planets are also moving constantly, they are always rotating along the same orbit. Here, the movement is local and temporary, and the universe has an immovable center. Denying the diversity of movement and attributing all redshift phenomena to a mechanical movement will eventually return to Newton's mechanical theory. Such a universe, which appears moving but is actually stationary, is still a theory of the immovable universe.

Hubble's law describes the mechanical movement of galaxies within a certain range and reveals the partial nature reflected by the redshift phenomenon. It is a local truth. However, as Lenin said, any truth can be exaggerated to the point of absurdity if it is exaggerated and applied beyond the scope of actual application. (Selected Works of Lenin, Volume 4, Page 217). Big Bang cosmology extrapolates Hubble's law to the entire universe and uses the palace as a model to shape a cosmic bubble. This is a bit like a blind man touching the sun. Someone told a blind man that the light of the sun is like a candle. Later, the blind man touched the shape of a flute, which is the same as the shape of the candle. He suddenly realized that the sun is a flute. When Big Bang cosmologists describe the shape of the universe in a serious manner, how can we not think of this story?

The universe is developing evenly

According to "Big Bang cosmology", the universe is just a loud bang. In this explosion process, hadrons, leptons, atomic nuclei, primordial gas, and finally galaxies appeared. The exploded continuously, and galaxies also flew away in this way. Hubble's law not only applies to the entire universe, but also runs through the entire history of the universe. Big Bang cosmology calls itself "evolutionary" cosmology. Evolution is development. What kind of "evolution" does Big Bang cosmology talk about? Do the classics [*trans* 官, officials] also talk about evolution and development?

In the history of Western astronomy, Kant was the first to talk about the evolution of celestial bodies. In the middle of the eighteenth century, he wrote a book "Introduction to the History of the Development of the Universe", which talked about the evolution of the solar system. Nebulae gradually condensed, from simple to complex, from low to high, and finally evolved into today's solar system. He was the first to talk about the history of the occurrence and development of the solar system. His book was a cannonball that opened the first gap in the stubborn fortress of Newton's theory of the invariance of the universe. Of course, Kant's "universe" at that time was mainly the solar system, and the development of the "universe" he talked about was also only the development of the solar system and the development of stars. But he used the history of the development of the solar system and the history of the development of stars to explain the true nature of celestial bodies. Evolution, real development. He promoted the theory of cosmic development and opposed the theory of cosmic invariance.

In the two hundred years after Kant, astronomy has made great progress. Using new observation tools and scientific methods of spectral analysis, people not only stay on the mechanical movement of celestial bodies, but also deeply study the physical and chemical movement inside celestial bodies, and astrophysics has emerged. In this way, the development history of stars has become clearer. At first, it is the embryo of the star, after the early infrared period, it enters the young main sequence stage of emitting blue, white or yellow light (such as the sun), and then goes through the red giant period of the prime of life to the white dwarf in the late stage. Since the 20th century, people have studied the development history of galaxies. In this regard, although the understanding is still superficial and the specific process is still unclear, in any case, galaxies of various shapes: elliptical galaxies, lens galaxies, spiral galaxies, irregular galaxies and other special galaxies always reflect different stages of galaxy evolution, and always prove that galaxies also go through a process of development and growth. A book of astronomy is also a book of celestial evolution and cosmological development. Kant only opened the way, and modern astronomy is continuing to write.

What is the "evolution" mentioned in Big Bang cosmology? It is mainly the change of the spatial position and the speed of position movement of galaxies, which is just

the change of mechanical motion state [*trans* expansion]. The more it evolves, the farther it flies and the faster it flies, so the red shift of the spectral line is greater. That's all. Is there any change inside the celestial body? No, at least Big Bang cosmology does not mention it at all. Even if the galaxy is displaced, Hubble's law will never change, and the relationship between its distance and speed will not change, and the regularity of this mechanical motion will not change.

If the distance between celestial bodies is the same, will the redshift be the same? Modern astronomical observations have found that in some binary galaxies, one is the main galaxy and the other is the companion galaxy. They are almost connected, so the distance is the same! But the companion galaxy's redshift is generally larger than that of the main galaxy.¹⁰ Why are the distances the same but the speeds different? Doesn't this completely violate the fixed proportional relationship between distance and speed in Hubble's law? There are also multiple galaxies, where several galaxies are close together, and some of them have obvious material connections with each other, but the redshifts are very different. If calculated according to Hubble's law, the distances between them are sometimes different by seven or eight times. How can this be consistent? Some scientists believe that the difference in redshift here may be caused by different evolutionary stages.¹¹ Isn't it possible that this "evolution redshift" is more reasonable than the speed redshift? Quasars were discovered in the 1960s. They are a very special celestial body, similar to galaxies, but different from galaxies. This is reflected in their spectral line shifts, and the redshifts are generally very large. Generally, the redshift of galaxies is less than a few percent, while that of quasars is mostly between 0.6 and 1.95, and some even exceed 3. If such a large redshift is still forced into the Hubble law, the energy can be as large as 10^{47} erg per second, which is equivalent to the total energy emitted by the entire solar system in a year, and the movement speed can be as large as ten times the speed of light, which is completely inexplicable by the known laws of physics.

Strangely, quasars with such a large redshift can form associations with ordinary galaxies and are very close to each other.¹² There are also double quasars that are very close to each other, but the redshifts are also very different. In addition, even the same quasar can still have multiple very different redshifts¹³. How can these

10 Some people have studied several galaxies. If they are all velocity-shifted, the recession speed of the companion galaxy

is on average 90 km/s higher. See Alzen: "Evidence for non-velocity redshift - new evidence and comments", in Proceedings of the International Astronomical Union, 11:174, No. 58, p. 1.

11 There is the famous Stephen Quintet, one of which has a redshift of 0.01, the other 0.019, and the other only 0.0027; and another large spiral galaxy near them also has a redshift of 0.02. However, there is an obvious material connection with the quintet. See Alzheimer's "Observational Paradoxes in Galactic Astronomy" in American Science, Vol. 174, No. 4015, pp. 1189, and "Proof of Non-rapid Redshift" in Proceedings of the International Astronomical Association, No. 63, 1971, p. 61.

12 For example, there is a quasar with two redshifts of 1.906 and 0.618. See .R. Burbage, E.M. Burbage: "The Red Shift of Quasars", American Journal of Nature, 1969, Vol. 222, p. 735.

Starr: "Two Incomprehensible Objects: OJ287 and BL Gemini", Sky and Telescope, 13 Laws of 1, Vol. 45, No. 4, p. 224.

13 For example, there is a quasar with two redshifts of 1.906 and 0.618. See R. Burbage, E. M. Burbage: 'Redshifts of quasars', Nature, 1969, Vol. 222, p. 735.

astronomical observation facts be explained only by spatial position and movement speed?

What is even more strange is that in recent years, it has been discovered that the spectra of some celestial bodies are actually continuous, with no spectrum lines at all, no absorption lines, and no emission lines.¹⁴ Without spectrum lines, what is the redshift? If the spatial position and movement speed of celestial bodies must be expressed as a certain amount of redshift, then how to explain these "incomprehensible celestial bodies"? Don't they have any position or movement at all?

The development of science is unstoppable. It will always break through the obstacles of idealism and metaphysics on its way forward and remove all kinds of stumbling blocks. These new redshift phenomena, especially the redshift phenomenon of "quasars", are in sharp contradiction with Hubble's law. The redshift phenomenon that was originally used by Big Bang cosmology to support itself is now being dismantled.

Modern astronomical observations show that the shape of galaxies is different and the amount of redshift is also different. Spiral galaxies are relatively large, while elliptical galaxies and lenticular galaxies are relatively small. It is not possible to explain this using Hubble's law. It seems that the only explanation is that the redshift of galaxies is different at different stages of development. Some people believe that the younger the galaxy, the greater the redshift, so quasars may be a kind of infant galaxy. Some people also propose that the redshift between types of galaxies is different.¹⁵ The redshift may include a part of "intrinsic redshift", that is, the component redshift caused by the characteristics of the material structure of the system itself.¹⁶

These are all very interesting hypotheses. Celestial bodies are at different stages of development, have different material structures, and different laws of motion, so they may show different redshifts in the spectrum. Young people [*trans* young celestial objects] have greater mobility and stronger attraction. Photons need to be emitted, and energy loss is greater, so the redshift of the spectrum line is also greater. Old people [*trans* old celestial objects] have less energy and less photon loss, so the redshift is smaller. Individuals have different physical constitutions at different stages of development. Isn't it also manifested in quantitative differences in blood pressure, body temperature, pulse, etc.? The difference in quantity reflects the difference in the quality of the development stage.

14 Starr, J., 'Two puzzling objects: OJ 287 and BL Gemini', in *Sky and Telescope*, Vol. 45, No. 224.

15 For example, the average redshift of galaxies in the Astronomical Cluster is 0.0043-0.47, while that of elliptical galaxies and lenticular galaxies is only 0.033; while in the Pennus Cluster, elliptical galaxies are always smaller than other galaxies. And Alzen: Evidence for velocity redshift - New evidence and comments, in *Proceedings of the International Astronomical Conference*, 1974, No. 58, p. 199.

16 Burbidge: The problem of the Redshifts, *British Journal of Natural and Physical Sciences*, Vol. 246, No. 160, 1973, p. 17.

Lenin said that: "We must understand evolution more accurately and regard it as the generation and destruction of all things and their mutual transformation." (The Complete Works of Lenin, Volume 4, page 280). When we talk about evolution and development, we are mainly talking about metabolism, the replacement of new things by new things, and the regularity of these replacements. The human body sheds its skin and hair every day, and some cells die while new cells grow. Organs undergo different processes of occurrence, development and decay. This is how development and growth occur. If we do not study the metabolism of cells, we will not know the development and growth of the human body. Similarly, if we do not study the metabolism of galaxies and regard them as the same, how can we develop a higher cosmic system?

Some celestial bodies are born, while others decay. The moon moves and the stars change, and there is no end. Is there any unified eternal law here? No. "Eternal natural laws are also increasingly becoming historical laws." "The Complete Works of Marx and Engels, Vol. 20, p. 581). The same law has different manifestations under different historical conditions and at different stages of development, and new laws of different qualities will appear in different stages of development. There is no unified time window, and thus there is no absolute uniformity of time. In this way, new things can emerge in an endless stream, the universe can change with each passing day, and there can be real development. Big Bang cosmologists say that laws cannot change, because if the laws change, there must be a law about the change of laws, and this super law should be different.¹⁷

In order to avoid this "contradiction", they insist that the universe follows the eternal and unchanging Hubble's law, expanding forever in this way until it disappears. This is not "evolution", but "degeneration". The so-called "contradiction" is actually the contradiction between their metaphysical minds and the dialectical movement of the objective world. They don't understand that all laws are conditional, temporary, and local. When conditions change, the laws must also change. Is there such a law about the change of laws? Yes. This law is nothing but the law of dialectics, the law of unity of opposites, and the law of metabolism. This is the fundamental, universal, and forever irresistible law of the universe.

Kant in the 18th century wrote a "history of the development of the universe". Although he only wrote about one solar system, he did write about the history of evolution and development. Today's Big Bang cosmology, although it has more modern observation instruments and sees a wider world of galaxies, has written a true "history of the degeneration of the universe".

¹⁷ W H McCrea, The Philosophy of Big Bang Cosmology, published in the British "Nature", October 1970, Vol. 228. The translation is published in the "Journal of Dialectics of Nature", No. 1, 1973.

Humanity's knowledge of the universe is infinite

Human beings' understanding of the universe is infinite. The shift of the spectral lines of celestial bodies under the spectroscope shows the position of celestial bodies in the universe. This is the essence of the redshift phenomenon, but it is relatively easy to see. It is only the more direct and superficial essence behind the phenomenon. The universe is infinite, and the essence of the phenomenon is also infinite. "Human thought goes from phenomenon to essence, from so-called primary essence to secondary essence, and so on and so forth, to infinity." ("Collected Works of Lenin", Vol. 1970, p. 278). Hubble's law is only a "primary approximation" to the redshift phenomenon, and is the "primary essence" of this phenomenon. This is only the beginning of human understanding of the redshift phenomenon. If, as Big Bang cosmology says, the essence behind the phenomenon is so simple, and we know it all at once, what is the use of science? What are scientists for?

Human cognition progresses from phenomenon to essence, and then to a deeper essence, and it is a continuous rise from sensory cognition to rational cognition. There is a worldview problem here. De Sitter, the pioneer of Big Bang cosmology, said long ago that from a physical point of view, everything outside our field is purely extrapolated, and we can make such extrapolations at will to suit our philosophical or aesthetic preferences or prejudices."¹⁸ De Sitter's successors still regard this as a guide. Their Big Bang cosmology today has infinitely extrapolated the initial understanding of the redshift phenomenon, so the entire world window is always expanding evenly and in the same way. It is indeed convenient, economical, and "beautiful", enough to suit De Sitter's "preferences or prejudices". If there are any new phenomena or new observational materials that are not compatible with this, they can be carefully tailored to suit it. At first, the Hubble constant was 500 kilometers/second/million parsecs, then it was reduced to 250, then to 75, and now it is 55 ± 7 .¹⁹ The "constant" has become a rubber band, and the "radius of the universe" and "age of the universe" are also forced to lengthen. The "age of the universe" has increased from 2 billion years, 4 billion years, 13 billion years, and now, according to the "precise" calculation, the "upper limit" of the "age of the universe" should be 18 billion years.²⁰ No matter what new discoveries and new experiences, after passing through this Procrustean robber's bed [*trans* arbitrarily forcing something to fit a pattern], the long ones are shortened and the short ones are lengthened, and all become new evidence for Big Bang cosmology.

Empiricism does start from a certain experience. However, once it inflates this little experience into a universal, eternal ultimate truth, it becomes something absolutely opposite, something that rejects new empirical facts and distorts new empirical facts.

18 De Sitter, 'Relativity and Modern Cosmology', in Word Window [*trans* machine translation inaccurate here] Theory (ed. Muniz), American edition, 1957, p. S07.

19 Peyman, J., 'The Hubble constant and the deceleration parameter', in Proceedings of the International Association of Astronomy, 1974, No. 63, p. 47.

20 Zildovich and Novikov: "Problems of cosmology as philosophical problems", in Journal of Astronomy, No. 4, 1974.

Empiricism always needs to be supplemented by a priori theory, and it becomes a captive of a priori theory, and finally it always has to go to a priori theory.

Phenomenon and essence are opposite and unified. Phenomenon reflects essence, but it can also cover up and distort essence. The redshift phenomenon also has duality. After decomposition, light penetrates into the material structure and expresses the essence of things, but after refraction, it always covers up and distorts this essence. Under the spectroscopy, all differences between the sky and the earth become the position shift of spectral lines and the difference in the size of redshift. They are all redshifts, only quantitative differences, not qualitative differences. This redshift simplifies complex things that are extremely different and covers up the different essences behind the quantity. Under the refraction of the spectroscopy, the infinite universe appears as a qualitatively single finite universe.

An authority of the Soviet revisionists named Zildovich said that the most satisfactory task of cosmology is to describe the phenomena observed in history according to the established physical laws. Then, will any new laws be discovered? According to him, "only when other possibilities for explaining the phenomenon have been exhausted, such a discovery has the right to exist."²¹ Once this principle is established, what new laws can be produced? In Copernicus' time, various phenomena of planetary motion were in sharp conflict with the geocentric theory. When there was a conflict, a "epicycle" for the planet to move on its own was added, and the earth could still sit firmly at the center of the universe. In this way, the deferent is enclosed in the epicycle, and the epicycle is enclosed in the epicycle, until there are about eighty epicycles. Can it be said that the geocentric theory has "exhausted" the "possibility" of explaining new phenomena? No. Epicycles can continue to increase infinitely. The Hubble constant can also continue to change, and the constant can be simply changed to a variable, and the linear relationship can be changed to a nonlinear relationship. When will this "possibility" be "exhausted"?

Does it require mathematical calculation? Of course it does. Without mathematical calculation, there is no accurate understanding of the universe. However, what is the significance of the calculations of the Big Bang cosmology about the "radius of the epicycle" and the "age of the universe"? "Due to the rigor of mathematical formulas, it is easy to make people forget the assumptions of the premise." (Collected Works of Marx and Engels, Vol. 20, No. 47)

The more "rigorous" the calculation is, the more it helps to cover up the false premise, the more it helps create a "scientific" illusion, and the more deceptive it is. There is a story that two short-sighted people were arguing in front of a temple whether the plaque was be red or black. The onlookers laughed and said, "The plaque hasn't been painted yet." When people seriously calculate such "universe radius" and "universe age", shouldn't they also be "interpreted"? Where is such a "universe"? Gou

21 Zildovich, "Strange Ink", in the Milky Way, the origin and creation of stars, and the second collection, Knowledge Publishing House, 1964 edition,

Zi, an ancient Chinese philosopher, once pointed out that "the trouble of ordinary people is that they are blinded by crookedness and blinded by the great truth.". He proposed an important methodological principle. The great truth is the great truth, the fundamental truth. For us, it is dialectics. Dialectics is to teach people to "remove the veil", to break the frame, and to smash the robber's bed. The spectroscopy is very important, and mathematical tools are also very important. Without these, we cannot see the bizarre redshift phenomenon, calculate their quantitative differences, and understand the vast universe. However, it is not enough to have a spectroscopy or mathematical tools alone. We also need a "main instrument, namely, a skeptical and critical mind." (Marx and Engels, Vol. 20, p. 394). With this "instrument", people can not only stop at phenomena, but also stop at the primary essence, and can see the infinite movement and development of the universe that can be calculated and cannot be calculated by mathematics. Engels said, "If a nation wants to stand at the top of science, it cannot be without theoretical thinking at any time." (Collected Works of Marx and Engels, Vol. 20, p. 4) The higher you climb, the farther you can see. Only with theoretical thinking can we "uncover the veil", not let the "song" of Hubble's law block our eyes, and can we look at the infinite universe and constantly expand our understanding of the universe. The Western bourgeoisie is talking about the "revolution" of astronomy. Indeed, astronomy is going to be revolutionized. However, the flowers have fallen, and the bourgeoisie can no longer find its own Copernicus or Kant. The proletariat must write its own new theory of the motion of the celestial bodies, a new "history of the development of the universe"