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FRONT COVER: Researchers of the Manufacturing Centre 111 under the State Academy of Sciences
Photo: Ri Kwang Song

Pictorial KOREA is published in Korean, Chinese, Russian and English.

The respected Supreme Leader Kim Jong Un looks round the Samchon Catfish Farm [February Juche 106 (2017)].

To Develop Catfish Farming

In February Kim Jong Un, Chairman of the Workers' Party of Korea, Chairman of the State Affairs Commission of the DPRK and Supreme Commander of the Korean People's Army, inspected the Samchon Catfish Farm that has been turned into a large-scale, world-class fish breeding base with the highest standards in Juche-based, scientific, intensive and industrial terms.

During his previous visit to the farm in December Juche 104 (2015) the Supreme Leader specified the task of turning the farm associated with the noble intention of the great General Kim Jong Il into a catfish production base of the world standard, sent competent personnel for designing and building work and solved the problems arising in the renovation work.

The service personnel who were seconded to the farm under the combat order of the Supreme Leader completed the gigantic renovation project in a short span of time.

Supreme Leader Kim Jong Un, on his visit to the renovated farm, enjoyed its panoramic view and said with delight that it underwent a sea change so that it was impossible to remember what it looked like before, describing it as a farm that deserves a praise in the world, a tidy farm as if it were in a city, the country's typical fish farm in light of the scale and modernization of the production lines and as another asset of the country to be handed down to future generations.

He looked round the newly built halls dedicated to education with revolutionary relics and the farm's history, sci-tech learning space, general control room, breed-fish ground, hatchery, fattening ground, feed workshop, cold storage chamber and other places to inquire about the details of the production and modernization.

He was delighted to see catfish as big as forearm swarming in each pond, saying that it seemed to him that there were more fish than water in the ponds and it was a sight to behold. He was more than happy to see piles of fish in the cold storage chamber.

He noted that the fish farm should set itself a higher goal and make efforts to hit it now that it has turned into a model of catfish farming, and specified tasks to be tackled by the farm.

Officials and employees of the fish farm were grateful to the Supreme Leader who keeps going on the road of selfless, devoted service to his dear people and made a firm resolve to contribute to improving the people's living standards with increased fish production.

Article: Kim Thae Hyon

The respected Supreme Leader **Kim Jong Un** inspects the construction site of the Ryomyong Street
[March Juche 106 (2017)].

The respected Supreme Leader **Kim Jong Un** visits the Pyongyang Kim Jong Suk Silk Mill
[June Juche 105 (2016)].

Opening Up a New Era of Mallima

Enthusiastic, selfless devotion of the respected Supreme Leader Kim Jong Un to the country and people serves as a powerful stimulant for the Korean people to make miracles and innovations.

The DPRK is witnessing an era of fresh leap forward, the Mallima era, being opened up in the country, although the frantic attempts by the imperialists and the enemy against it have gone to extremes.

In January last year the Supreme Leader visited the Pyongyang Kim Jong Suk Textile Mill. Saying that the Party members and other working people should inherit the fighting spirit and mettle of the preceding generations who had performed miraculous achievements, always asking themselves whether they were on Chollima, and thus live and work, asking themselves whether they are on Mallima, he inspired the Korean people to turn out in creating a Mallima era.

To ride Mallima is the iron will of the Supreme Leader to add eternal lustre to the achievements President Kim Il Sung and General Kim Jong Il had performed for the country and the revolution, times and history, as well as his great affection for the Korean service personnel and people to ride them on Mallima towards a happy future of a thriving socialist country.

When he visited the construction site of the Ryugyong General Ophthalmic Hospital in May last year, he earnestly said that the hospital should be built to be boasted internationally and flawless even by the standard of the future at an early possible date. Visiting the construction site of the Medical Oxygen Factory, he instructed that the factory should be completed by September 9.

On his visit to the Pyongyang Kim Jong Suk Silk Mill in June last year he expressed his expectations and belief that its officials and working people should become the model for the country in the Mallima era by rushing forward on Mallima, upholding the Party's intentions, as their preceding generations had done in the Chollima era, racing against time on Chollima as intended by the President and the General.

His infinite trust in them to become models for the country in the Mallima era following the tradition of the Chollima era touched the heartstrings of not only the working people of the silk mill but also other people across the country.

Greatly inspired by this, the Korean service personnel and people created miracles and successes of great significance in the national history, adorning

Miraculous innovations have been made in metal, chemical, light industry and other sectors of the national economy in the fierce flames of creating the Mallima speed flaring up across the country.

The respected Supreme Leader Kim Jong Un inspects the August 25 Fishery Station of the Korean People's Army [November Juche 105 (2016)].

the new era of Mallima.

The DPRK, overcoming all challenges and difficulties, charged ahead at full speed to develop rapidly day after day, racing against time.

In the course of this, it consolidated its status of a nuclear power, a military giant, in the East, opened up a broad avenue to a space power, and erected numerous monumental structures such as the Paektusan Hero Youth Power Station No. 3 and the Wonsan Army-People Power Station. Many industrial establishments and cooperative farms across the country surpassed the peak-year level. The Korean People's Army stood in the vanguard in adding lustre to the history of "gold seas" and a miraculous success was achieved in the restoration effort for the areas in North Hamgyong Province devastated by a sudden natural calamity.

Even the south Korean mass media commented on the Mallima speed of the DPRK in surprise. They said they had thought at first that it was a mere exaggeration, but it was the truth that the DPRK was going to dash forward at the pace of Mallima, as much as ten times of Chollima. They continued that the Chollima movement created by President Kim Il Sung was added by the speed campaign movement proposed by General Kim Jong Il and multiplied by ten times.

Thanks to the outstanding leadership of Supreme Leader Kim Jong Un who is writing a brilliant chapter of the socialist political history, cherishing a firm belief that the strength, intelligence and mettle of the people are the best in the world and nothing is impossible when the masses are mobilized, more and more miracles are being wrought out in the country and the Songun Korea is nearing its final victory.

Article: Choe Kwang Ho

The people in Kangwon Province, who have created the spirit of Kangwon Province, exemplary spirit of the Mallima era, by staging a daring campaign to carry through the leaders' lifetime instructions and defend Party policy, appeal to the working people throughout the country to celebrate the conference of pacesetters in the Mallima era to be held at the end of the year as the meeting of victors by waging a vigorous all-people, general offensive under the unfurled banner of self-reliance and self-development.

The Wonsan Army-People Power Station showing great vitality of self-development-first spirit.

Under the sagacious leadership of Supreme Leader Kim Jong Un the Korean people are achieving world-startling, miraculous successes with the spirit of self-reliance and self-development as the dynamic force.

By Dint of Science and Technology

In an effort to realize the policy of the Workers' Party of Korea to push ahead the victorious advance of socialism with the great spirit of self-reliance and self-development as the dynamic force, the Pyongyang Electric Cable Factory 326 is boosting the production of a variety of electric cables urgently needed in the economic development of the country.

The factory is directing primary efforts to the development of science and technology and overfulfilling its production plans.

It is giving full play to the creativity of the working masses by supporting the mass technological innovation drive conducted briskly during last year's 70-day and 200-day campaigns of loyalty.

Not only management officials and technical personnel but also ordinary workers have turned out in the development of new technologies, regarding the sci-tech development as the key engine for increased production.

They spend sleepless nights at the factory's sci-tech learning space and engross themselves in experiments at laboratories, fanning the fierce flames of the mass technological drive.

Those at the wire rod workshop developed a new technology of extracting high-purity aluminum from scrap ones, thus giving precedence to raw materials supply.

The cable workshop has employed a new method of recycling waste polyvinyl chloride by removing impurities and moisture to turn out 2 000-metre extra electric cables every day.

The factory has manufactured the roll printing ink and copper elongation oil known as the cutting-edge technologies and put the 150mm compressor, lead-sheathing press and other outdated machines and equipment on a modern and IT basis, thus raising the level of scientification in production.

The electric cables manufactured at the factory are making an active contribution to the development of the national economy.

Article: Kim Thae Hyon
Photo: Ri Myong Guk

IMS control room.

They acquire advanced science and technology at the sci-tech learning space of the factory.

The factory turns out a variety of electric cables to meet the urgent demands of the several sectors of the national economy.

With the Great Spirit of Self-reliance and Self-development as the Dynamic Force

By Their Own Efforts and Technology

- At the Sariwon Taesong Towel Factory –

The Sariwon Taesong Towel Factory has renovated its overall production processes.

Officials, technicians and other working people of the factory set a goal of modernizing the factory at a stretch in line with the trends in the development of textile industry by relying on their own efforts and technology in close collaboration with the scientific research groups and relevant sectors, instead of purchasing foreign equipment or beginning by executing simple ones.

The goal was ambitious, and it was by no means easy to renovate the towel loom with complicated technical specifications.

However, being fully aware that the modernization of the production processes is precisely the domestic production, the factory's staff pooled their creative wisdom with the researchers from the Kim Chaek University of Technology and the working masses of the Pyongyang Textile Machine Factory in renovating previous shuttle looms into CNC elastic staff looms.

By introducing computer-controlled system into all processes, new patterns that required some six months to change are now ready for printing within an hour.

In the course of technical reconstruction of the factory all the employees have become confident in their own strength and technology and made a firm resolve to develop their goods into world-class ones. So they are taking good care of the machines and facilities, increasing the towel production.

The products are now enjoying growing demand among the customers.

Article and photo: An Phyong Yon

Creative opinions of the workers realize in product designs.

Modernization of the production lines is carried out by dint of spirit of self-reliance and self-development to improve the quality of the goods.

To Put Mushroom Farming on a Scientific Footing

- Jongbangsan Mushroom Farm -

Recently I visited the Jongbangsan Mushroom Farm in Sariwon, North Hwanghae Province, well known among the local people for the production of various kinds of mushrooms.

The farm was built a few years ago and started mushroom farming in February Juche 103 (2014).

Regarding the scientific farming as its business strategy, it has given precedence to improving its workers' level of technical knowledge and skill ahead of production.

Proactive introduction of advanced farming methods as well as good experiences gained by Manageress Mun Hye Sun and other technicians and workers was encouraged, while enlisting all the farm employees in developing new, useful cultivation techniques and methods.

In the vigorous farm-wide drive of learning from and overtaking the advanced ones and exchanging experiences, the farm developed the method of growing Mannyon mushroom, *Ganoderma lucidum*, with high medicinal effects by using waste substrates for *Pleurotus eryngii* last year and took the first place in the IT products exhibition. Scores of cultivation methods were also invented and introduced into mushroom farming.

The establishment of the integrated manufacturing system and the computer controlled system of delivery and measuring of raw materials rendered a contribution to making the production lines modern and IT-based.

The farm's edible and medicinal mushrooms, including *Pleurotus eryngii*, *Pleurotus ostreatus*, *Ganoderma lucidum*, *Flammulina velutipes* and *Corprinus comatus*, are providing the people with a more bountiful diet.

Article and photo: An Chol Ryong

Main business strategy of the farm is the scientification of mushroom cultivation.

Cultivation ground.

Ganoderma lucidum.

Flammulina velutipes.

Pleurotus ostreatus.

Corprinus comatus.

Pleurotus eryngii.

Most Sublime Jong Il Peak.

Snowscape of the Native House.

Sunrise Rock, Winged-Horse Rock and Sword Rock.

EIGHT SCENIC WONDERS IN SOBAEKSU VALLEY

The Sobaeksu Valley is the sacred place of the Sun, which tells of the eternal history of the anti-Japanese armed struggle of President Kim Il Sung and houses General Kim Jong Il's birthplace in the Paektusan Secret Camp. It is also noted for the superb scenic beauty.

The beautiful scenery of the valley was designated as the eight scenic wonders in Sobaeksu Valley reflecting the desire of the Korean people to add eternal lustre to the sacred revolutionary history of the great leaders and their imperishable achievements.

The eight scenes are "Most Sublime Jong Il Peak," "Snowscape of the Native House," "Sunrise Rock, Winged-Horse Rock and Sword Rock," "Terrain Features Appropriate to a Natural Fortress," "Hoar Frost in the Sobaeksu Valley," "Sobaek Stream Flowing All the Year Round," "Nocturnal View of Fireworks Display in February" and "Endless Stream of Visitors."

Among the scenic wonders of the valley Jong Il Peak, soaring to the sky as a symbolic of the spirit and strength of Mt Paektu, is the most beautiful for its majestic appearance and excellent natural beauty.

The snowscape of the native house of General Kim Jong Il that heralds a new spring of Korea with the birth of the Shining Star, evokes rich and noble emotions with its unique scenery in primitive forests.

Rocks in the shape of sunrise, winged horse and sword make the scenery of the valley more conspicuous. On top of Jong Il Peak stands the Sunrise Rock, which looks like the sun rising at dawn. Below it are the Winged-Horse and Sword rocks side by side, as if a general holding high a sword were riding on a horse.

The scenic wonder "Terrain Features Appropriate to a Natural Fortress" represents the Sobaeksu Valley nestling in the sacred Mt Paektu and the deep valley.

Another spectacle is the hoar frost in Sobaeksu Valley. Frost-bound scenery is commonplace in winter, but the hoar frost in this valley stirs up greater fascination and admiration among the people as it is symbolic of ennobling soul, legendary personality and passion cherished by General Kim Jong Il.

The Sobaek Stream which rises in Lake Chon on Mt Paektu and flows all the year round goes well with the Jong Il Peak and adds to picturesque scenery of the Sobaeksu Valley.

Fireworks display in the nocturnal sky of Mt Paektu on the Day of the Shining Star, the General's birthday (February 16), mirrors the boundless respect and admiration of the Korean people and the world progressive peoples for the peerlessly great person who was born in Mt Paektu and performed immortal exploits for the times and history, and their resolve to hold him in high esteem for all eternity.

Endless stream of visitors to Kim Jong Il's birthplace in the Paektusan Secret Camp throughout the year is found nowhere else, presenting itself as the scenery unique to the valley.

Article: Kim Son Gyong
Photo: By courtesy of the KCNA

Terrain Features Appropriate to a Natural Fortress.

Hoar Frost in the Sobaeksu Valley.

Nocturnal View of Fireworks Display in February.

Sobaek Stream Flowing All the Year Round.

Endless Stream of Visitors.

International Kim Jong Il Prize Awarded

In February the International Kim Jong Il Prize was awarded to Ogami Kenichi, Secretary General of the International Institute of the Juche Idea.

The award-winning Secretary General is an ardent advocate of the Juche idea, immortal guiding ideology created by President Kim Il Sung, and has committed himself for scores of years to the cause of global independence and peace.

The International Kim Jong Il Prize was instituted reflecting the unanimous desire and aspiration of the progressive peoples the world over to add eternal brilliance to invaluable exploits and revolutionary career of the great leader General Kim Jong Il who developed and enriched the Juche Idea and rendered great services to implementing the cause of making the world independent.

The Internationl Kim Jong Il Prize Council honoured Ogami Kenichi with the prestigious prize on the occasion of the 75th birth anniversary of Kim Jong Il.

The Secretary General expressed his delight and pride of being awarded the prize on the significant occasion and resolved to conduct dissemination of the Juche idea more briskly.

Article: Kim Son Gyong
Photo: By courtesy of the KCNA

Ogami Kenichi, Secretary General of the International Institute of the Juche Idea.

Hymn of Praise for Great Person Reverberates through the US

Koreans in the US and local artistes performed a concert “Spring in February” at a concert hall in New York to celebrate the 75th birth anniversary of the great leader General Kim Jong Il.

Dear Home for Girl Workers

Under the sagacious leadership of the Workers' Party of Korea which regards as its life and soul to make selfless, devoted efforts for the good of the people, fine structures representative of the affection for the people are built one after another.

The hostel of the Pyongyang Kim Jong Suk Silk Mill that was inaugurated in January is one of them.

The seven-storey hostel is furnished with all the things needed for the convenience of the workers in life.

Each room of the hostel has bookshelves, wardrobes and a dressing table so that the girls feel delighted as putting on makeup, and the area for sports and amusement games is laid out to make them pursue cultural and leisure activities to their heart's content. The hostel is, indeed, closely associated with the loving care of the Party as a mother does to her daughters.

Every floor has a cooking practice ground in which the girls can make food on their own and learn culinary skills.

The hostel employs a supply system of lighting, cooling and heating by solar and geothermal energy, and is linked with Jindallae Health Complex, a comprehensive welfare service facility of the mill, through outdoor corridor.

The girl workers of the mill lead a pleasant and optimistic life in such a hostel which provides them with all the conveniences and cultured environment and conditions.

The cooking practice grounds are always full of girls who are making various foods which their mothers would prepare for them and entertaining their mates to the table.

Table tennis games that engage residents of the rooms and floors develop often into the competitions between workshops.

After games the competitors refresh themselves, having soft drinks at the stalls.

In the study rooms girls are engrossed in acquiring advanced science and technology.

The working people of the mill affectionately call the hostel their palace, hotel or sweet home, and strive to increase silk thread production.

Article: Kim Un Gyong
Photo: Ri Myong Guk

Night of Mirae Scientists Street

Mirae Scientists Street is well known across the country as the cradle of happy life for the lecturers and scientists.

At night the street is as bright as day, with the brightly-lit windows of the high-rise apartment blocks, an e-library, Ryugyong Rose House and other public catering and welfare facilities, as well as parks and resort grounds resounding with the merry laughter of the residents of the street.

The splendid flats of the street that have sprung up thanks to the meticulous care of the respected Supreme Leader Kim Jong Un were allocated to ordinary lecturers and scientists free of charge.

Not only a grey-haired professor from the Kim Chaek University of Technology spending his leisure evening time together with his family members at the Ryugyong Rose House, a lecturer's couple enjoying their meal at the Pomnoul Restaurant, and a young scientist buying his son a football at the Naegohyang Sports Goods Shop, but also other residents are unanimous in saying, "When we walk into the street after a day's work, we feel delightful and refreshed."

They are enjoying varied cultural and leisure activities to their heart's content at the amply-furnished modern facilities.

Old professors and young scientists residing in the Mirae Scientists Street are not aware of the night advancing, and singing loudly, *Don't advance, beautiful night of Pyongyang.*

Article and photo: Kim Hyon

Self-supply of Electricity by Using Natural Energy Sources

Efforts for raising efficiency of wind and solar energy resources are made.

They produce electricity for business management by making use of natural energy sources.

Numerous factories, enterprises and institutions in the DPRK generate electricity by solar and wind power, in an effort to implement the WPK's policy to ease the strain on electric supply by making proactive use of natural energy.

Among them is a service station of Saehuimang Joint Venture Company that fully satisfies its demand for electricity needed for operation with solar panels and wind turbines.

Solar panels and wind turbines neatly installed on the roof of the station generate electricity for the operation of tens of fuel pumps and other facilities and illumination of several buildings and their outdoor decoration as well as the operation of service facilities for cultural and leisure activities.

The station has turned from a consuming unit of the electricity supplied by the country to the unit that contributes to the country by producing by themselves the necessary electricity.

Manager Ri Chol Ho and other employees turned out in an effort to provide electricity by proactively using natural energy as required by the developing times.

They installed solar panels while manufacturing wind turbines by their own efforts and technology. Though they had little technical knowledge and experience, they pooled ideas and efforts to draw a design, make blades and assemble the turbines.

They also fixed solar panels with sensors made by themselves, to make them rotate automatically towards the sun and thus increase the production of electricity.

Thanks to the employees' ardent patriotic zeal, the station has turned into a "natural energy power plant" and is satisfying the demand for electricity by itself, without the supply from the country.

Article: Kim Jong
Photo: Hong Kwang Nam

Korean National Costumes for Women

Ri Yu Mi, Professor, Doctor, Merited Artist and lecturer from the Pyongyang University of Fine Arts

In the long course of historical development the Korean people have created their traditional costumes that match well with their ideological feelings and tastes as well as the natural and geological conditions of the country, production activities and lifestyles.

Among them are the national costumes for women which have been inherited and developed from the period of Ancient Joson (early 30th century BC – 108 BC) and are much loved by the women at present.

The Korean women's national costumes that are ennobling, beautiful, neat and elegant reflect the strong national identity of the Korean people.

In particular, their fabrics, forms, patterns and colours meet the demand of the times and modern aesthetic sensibilities and also highlight the unique features of the Korean national costume.

The Korean national costumes, delicate, refined, soft and ennobling in patterns and colours, represent the habits and dispositions of the Korean people who are gentle, plain and down-to-earth in wearing clothes.

The Korean women love wearing national costumes on not only ordinary days but also holidays, wedding days and major anniversaries.

They look conspicuous in elegant and unique national costumes that are seasonable and becoming to their ages and figures, as well as add the national fragrance to the venues of events.

The Korean national costumes that are permeated with the national resourcefulness and spirit inspire our people with high national pride and dignity.

Ri Yu Mi
Photo: Choe Won Chol

Traditional costumes for Korean women are being developed in line with the socialist lifestyles and modern aesthetic sensibilities.

Discussions are held to promote the excellence of the ennobling and beautiful Korean costumes.

Korean women love wearing national costumes that are good-looking and convenient.

A Variety of Electronic Products

Some of the factory's products.

The Pothonggang Electronic Goods Factory renders a contribution to making the national economy IT-based and providing the people with a better cultural life.

The factory started its operation in June Juche 102 (2013) with the assembling of the LED TV sets. It has undergone a tremendous change thanks to the sincere efforts of its officials and workers to make their products win favour among the people.

With a viewpoint that quality improvement depends on their high level of technical knowledge and skills, the workers have studied advanced technology and shared their experiences at the factory's sci-tech learning space.

The factory ensures strict observation of technical regulations and standard manuals of operation for all the production processes, as well as technical inspection by means of the frequency generator and aging test, fully guaranteeing the products' stability. The program developed by the technicians plays a big part in finding out inferior elements.

The factory now turns out LED TV sets, various kinds of PCs and USBs.

The Pyolmuri- and Pothonggang-brand electronic goods of the factory are drawing more public attention day by day.

Article and photo: Hong Kwang Nam

Kumgangsan Cosmetics Show Held

The Kumgangsan Cosmetics Exhibition House in An Sang Thaek Street, Moranbong District, Pyongyang, is always crowded with customers.

The exhibition house displays a variety of Kumgangsan-brand cosmetics that are uniquely aromatic and multi-functional.

The cosmetics are made from Kaesong Koryo Insam, a world-famous specialty of Korea, and natural water from Mt Kumgang, a celebrated mountain in the country. They fully conform to the requirements of GMP, ISO 9001 standards and received the SGS certification.

The Kumgangsan-brand cosmetics are favourite items of many people, women in particular, as they make them beautiful as well as protect the skin.

Article: Kim Hyon
Photo: By courtesy of the KCNA

Unassuming Efforts for the Sci-Tech Development

Dr. and Prof. Ryu Hae Dong, researcher from the Educational Books Publishing House, holds the copyright on most of the maths textbooks for middle schools and universities of education in the DPRK. He has not only authored a number of textbooks and reference books but made a considerable contribution to the maths development of the country.

His Career in the Education of the Rising Generations

Ryu Hae Dong was born in June Juche 30 (1941) in a mountainous village in Kumchon County, the then Hwanghae Province. His family had slaved as hired hands for landlords through three generations before the country's liberation (August 15, 1945) from the Japanese military rule.

Ryu Hae Dong devotes his energy to writing textbooks and reference books.

In his childhood he had dreamt of becoming a famous writer or an artist. However, witnessing his teacher who sincerely taught children in the same circumstances as himself, Ryu was deeply impressed and entered the then Sariwon College of Education.

He majored in maths on advice from his maths teacher of the middle school who developed his unusual reasoning and abstracting faculties.

In his college days he displayed his high practical ability, and in Juche 53 (1964) became an editor of the Educational Books Publishing House for writing and publishing textbooks and reference books for the students in the compulsory education stage. Some years later he began to write by himself the algebra and geometry textbooks of the middle school, and his books always met with approval among pedagogical experts for the novel composition, setting of teaching steps and problems.

After he became an editor-in-chief of the natural science department of the publishing house, he visited many schools and universities across the country to give lectures and examinations. In the course of this he set the reasonable levels of the maths education and probed continuously into the contents and composition methods appropriate to them.

He was the first in the country to write maths textbooks for the prodigy training as suited to the ages and psychological features of the students and their intellectual development. His textbooks and reference books were written in either inquisitive or demonstrative way, and the maths textbooks for secondary education contained the rudiments of the graph theory and mathematical logic.

He has made painstaking efforts through all his life to bring schoolchildren close to the maths world more quickly and easily. During his career he wrote more than 150 kinds of maths textbooks and reference books. Hence those who were born since the 1960s received secondary education with the textbooks written by Ryu.

Going Beyond the Cutting Edge of Maths

Already in his college days Ryu had studied several spheres of the modern maths beyond the scope of textbooks. Busy as he was compiling textbooks after graduation, he buckled down to the study on the topological graph theory in the middle of the 1960s.

He read through the books in the fields of topology and graph theory, basic and applied mathematics respectively, deepened the study on the one-dimensional topological graph theory and extended to the multi-dimensional spaces.

In order to make a contribution to the country's maths development, he did not stop thinking and studying, even in bed. Four o'clock in the morning was his rising hour every day, and he found not a few ideas of new theorems and formulas while thinking in bed at night.

In Juche 96 (2007) he sent the international mathematicians' league his study paper denying the argument formerly acknowledged in the field of the topological graph theory and proving his new argument.

Becoming more vigorous as he was getting older, he wrote over 300 valuable papers on the topological graph theory.

He studied together with his son, Ryu Il Hyong who works as a department head of a university in Pyongyang, and they discovered over 630 new formulas and published the booklet summarising the topological graph theory in more than 700 pages.

"The key to success is not a clear head, but unabated enthusiasm," this is what old Ryu used to say to the people who admire his lifelong successes.

He produced 40 odd people with academic degrees or titles.

Ryu is now continuously leaving his outstanding trace in the worthwhile undertaking to educate the rising generations and develop science.

Article: Choe Kwang Ho
Photo: Hong Thae Ung

At home he is a careful teacher to his grandson.

Exchanging his experience in compilation with an official from Chinese Yanbian Publishing House.

Some of textbooks and reference books written by Ryu.

Seventy-year History of Folk Art Production

The Opera Troupe of North Korea that was founded in October Juche 36 (1947) as an artistic group for producing and staging folk music pieces, dances and operas rich in national sentiments is the direct ancestor of the present National Folk Art Troupe.

Ever since its debut with the opera *Kyonu and Jingnyo* until the 60s of last century, it had produced many Korean legends and folk stories in the form of changguk (Korean classical opera) and other dance and one-act dramas to represent the reality of the times.

In the 1970s when the immortal revolutionary drama *The Sea of Blood* was adapted as a model opera under the direct guidance of General Kim Jong Il and a golden age was brought about in the operatic art, the troupe produced such revolutionary operas as *Tell O Forest* and *Song of Mt. Kumgang*, thus making an active contribution to the development of the modern operatic art.

Afterwards, it produced the folk opera *The Tale of Chun Hyang*, the kayagum solo and ensemble *Ongheya*, and other unique folk instrumental pieces. In the course of this it perfected its aspect as a comprehensive folk art troupe by the 1990s, upholding the policy of the Workers' Party of Korea on developing folk art, and produced the folk opera *The Tale of Sim Chong*, the folk dance suite *The People in the Walled City of Pyongyang*, and the folk dances *Yangsando* and *The Janggo Dance*.

Entering the new century, it produced such works rich in national sentiments and flavour as the dance drama *The Tale of Sado Fortress* and dance suite *Our Golden Country*, portraying the excellent character of the Korean folk art with the time-honoured history and the ennobling and optimistic spiritual traits of the Korean nation. Last year it created and staged a new type of music and dance tale *The Story Told by Arirang* within a short period of 40 odd days.

Staffed with talented creators and artistes, including People's and Merited Artists and Artistes, the art troupe has made great contributions to demonstrating the beautiful and elegant Korean folk art through its 70-year-long energetic artistic activities in many foreign countries as well as at home.

The members of the National Folk Art Troupe, fully aware of the mission they have assumed in developing the national art through generations, are devoting their collective wisdom and enthusiasm to the creative activities.

Article: Choe Ki Song
Photo: Choe Won Chol

Creators and artistes devote their efforts to produce excellent pieces rich in national sentiments.

Proud History of the National Folk Art Troupe

A scene from the opera *The Tale of Sim Chong* [Juche 36 (1947)].

A scene from the folk opera *Eight Fairies in Mt Kumgang* [Juche 57 (1968)].

A scene from the revolutionary opera *Tell O Forest* [Juche 61 (1972)].

A scene from the revolutionary opera *Song of Mt Kumgang* [Juche 62 (1973)].

A scene from the folk opera *The Tale of Chun Hyang* [Juche 77 (1988)].

A scene from the folk dance suite *The People in the Walled City of Pyongyang* [Juche 86 (1997)].

Big Efforts to Put Education on a Modern and IT Basis

The DPRK directs great efforts to putting education on a modern, IT footing to produce a large contingent of talented personnel. Many schools have already been refurbished in the latest fashion, with the result that great efficiency has been achieved in teaching.

Exemplary in this respect is Kinjae Junior Middle School in Sosong District, Pyongyang, in which all the classrooms have been renovated to serve multiple functions.

The increased effectiveness of education at this school is attributable to the devoted efforts of its teachers. They drew up ambitious plans for the renovation of their classrooms, proceeding from the standpoint that they should keep their feet firmly planted on this land and look out over the world as required by the developing times. They had to blaze a trail for the modernization drive, so they pooled their wisdom and energy for the future of the country, furnishing all the classrooms with latest educational equipment, building an intranet and computerizing teaching and school administration. They conducted a close study of global trends to ensure practicability and scientific accuracy in giving lessons.

In close collaboration with a pedagogical institute, the headmaster Min Kyong Ju and other teachers strove to furnish each classroom with electronic board, television camera, episcope for projecting visual aids and computers connected to the intranet. They also run the homepage *Our School* by themselves and endeavour to increase its practical efficiency. In addition, they have developed multimedia programs for each subject as suited to the students' psychological peculiarities, and electronic teaching plans that can be used for cyber lecture as well.

These painstaking efforts are paying dividends: the efficiency of 45-minute lesson has been raised; students get ready access to necessary information on the homepage; teachers inspect other classes during lessons via the intranet; school administration is done on the homepage. As a result, notable advances have been made in enriching students' knowledge and improving teachers' qualifications.

Fertile soil yields good fruit. The patriotic-minded, IT-sensitive teachers will continue to train their students into pillars of the country, knowledgeable, virtuous and sturdy.

Article: Kang Su Jong
Photo: Ri Myong Guk

Students acquire versatile knowledge in the improved educational environment.

Kim Kwang Myong, worker of the Okryu External Construction Company, restored his eyesight thanks to the devoted care of the medical workers of the ophthalmic hospital.

Sincere treatment for Kim.

In the Benefit of Socialist Health Care System

I had not realized how I was blessed to enjoy the benefits of the free medical service system of the country until I received medical treatment for the detached retina of my right eye at the Ryugyong General Ophthalmic Hospital in February.

At that time I was said to be in such critical conditions that I could hardly keep my eyes, much less the vision.

However, the doctors of the ophthalmic hospital decided to operate on me so as to restore my vision. The operation took longer than two hours.

After that they continuously observed my condition 7 or 8 times every day, conducted the funduscopy, intraocular pressure test, a slit lamp microscope check and other tests 4 or 5 times, and administered various vitamins, metabolism activators, antibiotics and other medicines, all free of charge.

After a month's treatment I restored my vision.

During those days I felt keenly the benefits of our country's socialist health care system that legally guarantees everybody the right to free medical treatment, as well as the fraternal affection of the medical staff who did their best for an ordinary worker like me.

As I looked round the hospital with my recovered eyes, I got bigger impression.

The hospital was furnished with the state-of-the-art medical equipment such as scanning laser fundus camera, cornea endothelial cell measuring instrument, and an eyeglasses shop with various glasses, parts and optical instruments.

The ophthalmic hospital is the one for the people erected thanks to the noble intention of the respected Supreme Leader Kim Jong Un to afford priority, respect and love to the people. At this magnificent hospital I, an ordinary worker, restored vision, and all our people lead a happy life, enjoying the benefits of free medical service. This is the reality of our socialist country, which capitalist countries can never possess nor imitate, I believe.

My country is, indeed, the people-centred socialist one in which the Party and the state take full responsibility for the lives of the people. For this grateful motherland, I will devote my all.

Kim Kwang Myong
Photo: Choe Won Chol

Kim reading a book at home.

Phyongsong University of Coal-Mining Industry

Lecturers discuss scientific teaching methods.

Inaugurated in October Juche 57 (1968), the Phyongsong University of Coal-Mining Industry is a base for training technicians and specialists in the sector of coal-mining industry.

In its 49-year career the university has produced many scientific, technical and management personnel who have acquired advanced scientific knowledge and rendered great services to making the effective use of abundant coal resources in the development of the national economy.

Among them are two Heroes of the DPRK, three Labour Heroes, three Merited Scientists, and over 490 academic title holders, including academicians, candidate academicians, professors and doctors.

In hearty response to the policy of the Workers' Party of Korea to make all the people well-versed in science and technology, the university has put an emphasis on improving the education system, contents and methods as well as its conditions and environment and thus achieved considerable successes in producing managing officials, scientists and technicians in the coal-mining industry sector.

It is channelling great efforts into training their students as competent personnel with application abilities capable of solving any problems arising in reality, such as tunnelling methods and mining engineering suited to the country's geological features and the layers of coal veins.

It has made the classrooms multi-functional and furnished laboratories with various aids, greatly paying off in talent training. At the same time, it is giving priority to the education of cutting-edge science and technology so as to place the coal-mining industry on an IT and scientific basis.

It is encouraging its lecturers and researchers to establish the Juche orientation in scientific research and take an active part in solving scientific and technical issues arising in practice. Thanks to their efforts, in recent years alone, more than 100 sci-tech achievements were made and applied to practice, including the electric rock-driller which is made domestically, the resistivity CT device for prospecting the mine and underground sectional imaging technique.

The university is making a great contribution to the development of the country's coal-mining industry with its talent training and valuable sci-tech successes.

Article: Kim Jong
Photo: An Chol Won

Students prepare their practical abilities to solve all the problems arising in reality.

To Develop Traditional Martial Art

The North Hwanghae Provincial Taekwon-Do Team is striving to develop Taekwon-Do, a traditional martial art of Korea.

Its head Jang Tong So, Merited Athlete, and other officials are encouraging the coaches and players to make persevering efforts to work out scrupulous training programmes and execute them without fail, with a firm determination to contribute to building a sports power.

The team's overall efforts are geared to fully prepare its players in terms of physique, technique and tactics. To this end, it is putting an emphasis on intensifying the training in basic techniques and organizing competitions between the players to attain the physical and technical indices, while inspiring their zeal for training to overtake the leading players.

Senior coach Paek Jong Sik and other coaches are devoting all their wisdom and enthusiasm to teaching and coaching, presenting speed, blow, accurate movement and persevering patience as key problems to be solved for technical development. They are concentrating efforts to make players correctly understand the fundamentals of Taekwon-Do and ensure accuracy in training movements, and working scrupulously in conformity with every player's age and feeling.

The team's players are making greater achievements. They are setting themselves high goals and intensifying training to perfect various techniques, overcoming physical exhaustion.

The team is also channelling strenuous efforts into training reserve players. It has so far produced a lot of players who won in national and international competitions.

Among them are Han Song Min who won two gold medals and the technical prize for male individual at the 19th World Taekwon-Do Championships two years previously, Ri Song Hun who snatched four gold medals at the 8th Asian Taekwon-Do Championships last year and was designated as one of ten best Taekwon-Do players for 2016, and Kim Yu Sim who won three gold medals at the 12th World Juvenile Taekwon-Do Championships.

Article: Jong Ki Sang
Photo: Hong Kwang Nam

Inevitable Fate of the Traitorous Dictator

South Korean ruler Park Geun Hye was at last ousted from her office by the people.

In March the impeachment motion was passed with unanimous approval at the Constitutional Court, pushed by the strong public resistance against Park who abused power playing into the hands of an exorcist.

After taking power by means of hypocrisy and deception, she pursued politics as dictated by Choe Sun Sil, a lady no more than an exorcist with no official post. In collusion with her, she threw a wet blanket over the desire of the whole nation for reunification, inflicted extreme misery and agony upon south Korean people and sold the national prestige and interests to outside forces without hesitation.

In order to maintain her existence under the cover of the US, which is dreaming of achieving supremacy in the Asia-Pacific by dominating the Korean peninsula, she offered a large sum of the taxpayers' money to the US forces occupying south Korea, had the date of the wartime operational control transfer postponed and promised to have THAAD deployed in south Korea in spite of the denouncement of the people at home and abroad.

Outweighing her father Park Chung Hee in pro-Japanese tendencies, she forgave the barbarous crimes of sexual slavery by Japan in World War II after receiving a paltry reward and concluded with Japan an agreement on military information security, thus opening the door to reinvasion for the sworn enemy of the Korean nation.

Hell-bent on the revitalization of the Yushin dictatorship, she resorted to fascist rule, turning the south Korean society into a living hell.

A farmer who took part in a demonstration for the right to existence was killed by the fascist police firing water cannons. A large number of young people, having lost hope for their life, chose to commit suicide. Hundreds of young students were drowned in the sea. Over 5.7 million people have become so destitute that they are scarcely able to keep body and soul together. Such a living hell, a desert of human rights, is a picture of south Korea drawn by Park Geun Hye's anti-popular rule.

In the meantime, she raked in tens of millions of US dollars by fraud and squandered them for her luxurious and dissipated life.

With a plan to realize her ambition to invade the north with the help of foreign forces, she had the provocative joint military drills staged one after another by introducing the US means of nuclear strike, thus creating a constant danger of a nuclear war on the Korean peninsula.

Ousting of Park Geun Hye, a political imposter and human scum, who flattered foreign forces, resorted to treachery and pursued only her comfort in disregard of tens of millions of people, is a sentence of death representing the public sentiments.

Her miserable fate fully shows the ignominious end of a traitorous dictator.

Article: Jong Ki Sang
Photo: By courtesy of the KCNA

Salt Production Site Newly Discovered

Last year a research team from the History Faculty of Kim Il Sung University unearthed a salt production site believed to be from a medieval Korean state which had existed in the northwestern part of Korea centring around Pyongyang between AD 37 and around the late 2nd century before being annexed to Koguryo (277 BC – AD 668).

The medieval salt production site was discovered in the Wonup area in Onchon County, Nampho. Previously in Juche 103 (2014) a salt production site of Koguryo dating back to the 4th century had been unearthed in the area.

The recent finds are a kiln site and an oval pool.

The kiln site in a round shape is the stone structure with the upper part of which had been hardened by intense heat. There was a thick ash layer inside and a trace of furnace is seen on the south side.

In the place southeast from the kiln site is an oval pool in which a thick, dark ash layer lies. Found there were pieces of black, light grey and brown earthenware, two pocket iron axes and many other pieces.

The earthenware pieces are similar to those found in the relics of the ruined people of Ancient Joson (early 30th century BC – 108 BC). The light grey earthenware, in particular, is typical hard pottery made in the medieval state.

The pocket axe was made by forging the pocket section in a way that the blade can be folded, and the tool began to be used by the Korean nation in around the 2nd century. Accordingly, the new site can be claimed to be the relic belonging to the state that existed in the Onchon area around the 1st-2nd century.

The discovery of the salt production site from a medieval Korean state annexed to Koguryo explains that the Korean ancestors had developed the technique of making salt at a high level at the time and the technique was handed down by Koguryo. It also glorifies the excellent culture of the Korean nation.

Article: Kim Un Gyong
Photo: By courtesy of the KCNA

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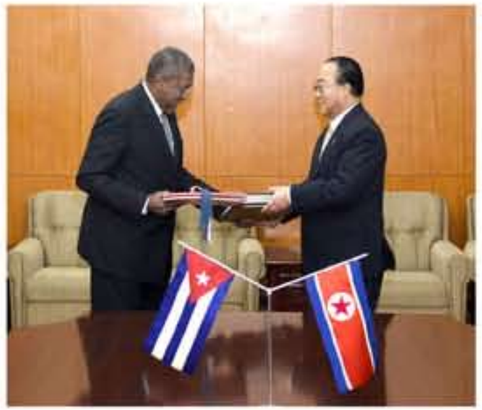
Brief News

Photo: By courtesy of the KCNA

Steady development of the relations of friendship and cooperation between the DPRK and Cuba



Governmental protocols on the cooperation and development of the economy and science and technology and the commodity exchange for the year 2017 between the DPRK and Cuba were signed in Pyongyang.

Korean Committee for Solidarity with Cuba held its annual meeting.

AFC Women's Football Day 2017 Marked

A workshop, a preview and other functions are held to mark the AFC Women's Football Day.

Pictorial KOREA is available in Korean, English, Chinese, Russian and French at www.naenara.com.kp.
E-mail: flph@star-co.net.kp

BACK COVER: Mt Myohyang in the morning
Photo: Kong Yu Il