

The Pyongyang Times

Democratic People's Republic of Korea

No. 39 (3 127) weekly <http://www.pyongyangtimes.com.kp> e-mail: flph@star-co.net.kp Sat, September 26, Juche 109(2020)

LEAD

Subordinating everything to the good of people

The DPRK recently suffered severe damage from heavy rain, flash flood and typhoon that hit it in succession.

The Workers' Party of Korea has set the campaign for recovery from their damage as the most important front to relieve the people of discomforts and sufferings.

Immediate all-Party and all-nation emergency measures have been taken and construction force and means urgently dispatched to afflicted areas. Elite divisions of Party members of the capital city were organized and committed to the rehabilitation areas in North and South Hamgyong provinces and the Korean People's Army units sent to the Komdok area. Powerful construction force was also dispatched to the disaster-stricken areas across the country including North and South Hwanghae and Kangwon provinces and Kaesong City.

It is the intention of the WPK to give top priority and

absolutize the people's safety and convenience, however uphill and costly the tasks are, and to not simply restore the damaged buildings or living environment to their original state, but wonderfully rebuild them to meet the demand and aspirations of the people and the requirements of the times and to be flawless even in the distant future.

In hearty response to the call of the Party Central Committee, fresh achievements have been made in the theatre of relief operation throughout the country day after day.

Members of the divisions of Party members of the capital city have mounted a 24-7 construction campaign in a three-dimensional way to press on with the reconstruction.

The KPA service personnel are working day and night to achieve fresh successes by exploiting every possibility.

Shock brigade members from across the country have

also joined the fierce battle for rehabilitation.

Production picks up in relevant sectors and units that are responsible for the supply of materials, equipment and supplies for reconstruction.

Collective innovation and increased production drives are well underway in various economic sectors to ensure the preferential supply of cement, steel products, timber and others badly needed for rehabilitation projects. The rail transport sector carefully organizes and commands transport to carry freight needed for reconstruction without a moment's delay with a viewpoint that they are providing wartime transportation.

The people across the country render selfless, unsparing assistance to the flood victims in all sincerity as their kith and kin, feeling as if they are working in the same trench with relief workers.

By Om Ryong PT

REACTION

Local farmers resolve to return favour

Residents of Kangbuk-ri, Kumchon County, North Hwanghae Province, sent a letter to Supreme Leader Kim Jong Un on September 18 after moving into new houses.

In the letter, they extended their heartfelt thanks to the Supreme Leader who made sure that a beautiful socialist village to be envied by urbanites was built for them, who were left homeless overnight due to a sudden heavy rain and strong wind, and new homes were provided to them. They said that the village, which is called Kangbuk-ri as it is located in the north of the lower reaches of the Ryesong River that had inflicted calamities on locals, has now turned into a blessed one to be the envy of the whole world.

They added that the floor of the room the Supreme Leader put his hand on, the window sill where he sat down while feeling relieved of all anxieties, the height of ceiling, kitchen range and cooking pot he measured and weighed are all proper and nice, and children are waiting for the day when they will study in the school visited by him.

They expressed their resolve to keep the new homes provided by the Supreme Leader neat and tidy while handing them down through generations as a family treasure, exalt the village as a model village of socialist rural

community and make the fields of the farm fertile in order to have a bumper crop every year.

Pak Chol Su, chairman of the Management Board of the Kangbuk Cooperative Farm in Kumchon County, North Hwanghae Province, said:

"A model village of socialist rural community has been built in Kangbuk-ri, which had been afflicted by natural disaster, to see a happy event of moving into new homes.

"Still vivid in my memory is the benevolent image of Supreme Leader Kim Jong Un, who visited our Kangbuk-ri village which had undergone a radical change and hoped that its residents would feel tender towards the new village and homes to lead a happy life and that the village would enjoy eternal good luck.

"It is not long since we suffered from a sudden natural disaster. But in the period we have renewed our faith that we have nothing to fear any difficulties and trials as we are led by the Supreme Leader.

"I will do my best to minimize crop damage as the master of the farm and thus take the lead in implementing the agricultural policy of the motherly Party so as to live up to the great affection shown by it with all loyalty."

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RECONSTRUCTION

Rehabilitation campaign makes brisk headway in flood-stricken areas

Soldier builders are stepping up projects in the reconstruction sites in Taechong-ri, Unpha County, North Hwanghae Province.

Field reconstruction headquarters of the Ministry of the People's Armed Forces and army units are pushing internal construction and site clearing at a fast pace while taking measures for the supply of construction materials and tools in keeping with three-dimensional construction and rationally forming construction forces according to tasks.

Those who take charge of finishing work in the house construction project press on with the plastering for external decoration, tile-fixing, water supply network and others.

Members of the Second Division of Party members of the Capital City are achieving amazing successes in the construction of houses in typhoon-afflicted Kim Chack City of North Hamgyong

Province.

Builders of the battalions of the Pyongyang Municipal Party Committee and universities waged a 24-7 campaign, despite unfavourable working conditions and environment, to complete the concrete tamping of slabs before others throughout the division and buckled down to roofing work.

Those of the battalions of the Pyongyang Municipal People's Committee, Pyongyang Municipal General Passenger Traffic Service Enterprise and Tobacco Complex are pushing the concrete placing of slabs and other works according to the schedule.

The battalions of the Pyongyang Municipal Foodstuff Complex, Pyongyang Meat Production and Processing Complex and Pyongyang Poultry Farming Bureau ensure both quality and speed in construction by enhancing the responsibility and role of skilled workers.

The Pyongyang Thermal

Power Complex, Taedonggang Battery Factory and Pyongyang Rubber Factory battalions also rounded off the concrete laying of slabs by giving precedence to the processing of reinforcement bars, the making of shutterings and the supply of mortar and rationalizing manpower allotment.

Those in the battalions of the central heat supply network station and Pyongyang Municipal Garment Industry Management Bureau are mounting an offensive as they learn after the examples of advanced units.

House construction is being carried on at a high rate in the afflicted areas of Ichon County, Kangwon Province.

The builders of the Capital City Construction Commission are working hard day and night to make a good job of internal and external plastering and roofing for well over 100 houses.

The rehabilitation campaign headquarters of the commission

is giving precedence to the supply of materials and concentrating all machines on the building of low and single-storey houses in the county town, Murung-ri and several other areas.

The builders are overfulfilling their daily assignments in roofing work as they speed up the mixing and delivery of mortar, processing of reinforcement bars and form assembly.

Drivers of heavy machines and lorries are maximizing the operational rate of their vehicles for prompt transport of materials.

Pipe laying and site clearing are being pushed, as well as plastering and roofing.

The campaign for recovering from flood damage keeps up momentum in Changdo County, Kangwon Province.

The county people in collaboration with soldiers of the Korean People's Army finished the stone covering of river

banks, dredging of river beds and building of embankments, restored hundreds of hectares of cropland and power lines and completed the erection of power poles in a short time. They are now concentrating efforts on the building of dwelling houses.

Having already finished the framework and external plastering of dozens of blocks of single- and low-storey houses, they are now pushing the roofing work such as laying of roofing tiles and the internal plastering simultaneously.

The construction of dwelling houses is being pushed dynamically in the Komdok area of South Hamgyong Province.

According to information available, soldier builders finished the excavation for foundations of dwelling houses and started concrete placing as of September 24.

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GUIDE TO VICTORY AND GLORY

Single-hearted unity enables DPRK to brave through all challenges

This year, the Korean people are faced with the challenging task of recovery from successive natural disasters along with the anti-epidemic work in the current world health crisis.

To cope with the emergency, the Workers' Party of Korea decided to celebrate its 75th founding anniversary as a genuine holiday of the people and a revolutionary holiday cementing single-hearted unity by stabilizing the life of the disaster victims as early as possible and sprucing up the afflicted areas and roused all its members and other working people to the rehabilitation campaign.

True to the Party's call, more

than 10 000 Party members in Pyongyang and many People's Army units rushed to the stricken areas to wage a 24-7 struggle. As a result, Kangbuk-ri in Kumchon County, North Hwanghae Province, recently turned into a model village of socialist rural community.

What is the source of strength of the DPRK which is capable of carrying on such gigantic reconstruction projects simultaneously in different parts of the country even though everything is in short supply?

A close scrutiny of the course the WPK followed will give you the answer to the question.

The country was in a very difficult condition in the late

1950s.

Steel was essential for shoring up the economy disrupted by the war and improving the people's living conditions that deteriorated due to the war. The workers in Kangson created a miracle of producing 120 000 tons of billets by means of a blooming mill with a rated annual capacity of 60 000 tons in hearty response to the Party's appeal for producing 10 000 tons of more steel to relieve the economic stress on the country.

Korean workers manufactured tractors, lorries, ships and electric locomotives afterwards and a 10 000-ton press in the 1980s.

The Korean working class

manufactured all these products of self-reliance true to the WPK's line of building an independent national economy.

They could make them from scratch as they had absolute trust in the Party's lines and policies and the faith that they would surely emerge victorious when they do as dictated by the Party.

With such trust and faith, the Korean people rounded off the Arduous March and laid the eternal foundations for building a powerful socialist country.

At present the WPK remarkably strengthens the driving force of the revolution by maintaining the people-first idea as its supreme principle,

thereby fully demonstrating the might of single-hearted unity.

This unity is just the source of invincible might of the DPRK that remains unperturbed in the raging wind of history.

As lightning is followed by thunder, the people always respond to the Party's call and brave and overcome all manner of trials and hardships rallying closely behind the Party. The might of this single-hearted unity is fully being displayed in the sites of the ongoing rehabilitation campaign.

Single-hearted unity is a great feature of the DPRK and a treasured sword for victory.

By Pak Song Min PT

POSTER

New posters unveiled for WPK's 75th anniversary

The Workers' Party of Korea Publishing House has brought out new posters for celebrating the 75th founding anniversary of the Workers' Party of Korea.

A poster carries the Party Founding Museum, the red Party flag and a bunch of flowers along with letters "The celebration of the 75th founding anniversary of the WPK", which makes everyone look back upon the brilliant development course of the WPK which has led the Korean people along the road of victory and glory to build a socialist paradise on this land and the history of great struggle.

Another poster "The highest glory to our great Party!" depicts a worker, farmer and intellectual holding high a hammer, sickle and writing brush against the



background of the display of fireworks in nocturnal sky and torchlight parades. It shows well the respect of all the people for the Party and their firm faith and will to inherit and

accomplish through generations the revolutionary cause of Juche pioneered on Mt Paektu following the Party.

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INSPECTION

Premier visits iron and steel giant

Premier Kim Tok Hun, who is member of the Presidium of the Political Bureau of the Central Committee of the Workers' Party of Korea, inspected the Chollima Steel Complex.

He took measures to solve the problems arising in operating equipment at full capacity, including the normal operation of electric furnaces and improvement of technical management of the continuous ingotting machine.

At the Hwanghae Iron and Steel Complex, he referred to the need to step up the installation of an oxygen plant and conduct a mass technical innovation movement for increasing iron and steel production by introducing rational melting methods and decreasing the steelmaking time.

During his inspection of the Pyongyang Electric Building Materials Factory, he called upon its officials to produce more electric building materials with locally available raw and other materials.

The field consultative meetings discussed practical issues to ensure that the relevant units take strict steps for the supply of electricity and raw and other materials to increase iron and steel production urgently needed for the reconstruction projects and to introduce scientific research hits into the production of electric building materials.

Earlier, the Premier inspected the Suncheon Cement Complex and the Posan Iron Works.

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Nationwide

Poems, songs created in reconstruction sites

Among the works are poems like "Charge forward, Party members of the capital city!", "I petition" and "I am a Party member of the capital city Pyongyang" and lyrics "March of the division of Party members of the capital city" and "We are lifeguards of the Party Central Committee". Running through them is the revolutionary fighting spirit of the Party members of the capital city who volunteered to work in the reconstruction sites of North and South Hamgyong provinces, true to the appeal made by the Central

Committee of the Workers' Party of Korea.

Lyrics have also been produced in praise of the loving care shown by the motherly Party for the people in disaster-afflicted areas.

Such poems as "We devote our sincerity", "Together with you", "Forward, Party members!" and "Their 24 hours" show well the struggle of Party members who are waging a 24-7 reconstruction campaign to provide those in the disaster-stricken areas with better dwelling houses and living conditions.

Poets also wrote impromptu poems in the reconstruction sites of North Hwanghae and Kangwon provinces to encourage the builders to work miracles in the relief

operation.

Novel published about Supreme Leader

The April 15 Literary Production Company in the DPRK has brought out novel "Rejuvenation" authored by Paek Nam Ryong, the first one of the cycle of novels "Immortal Landmarks", which comprehensively deals with the greatness and immortal revolutionary feats of Supreme Leader Kim Jong Un.

"Immortal Landmarks", together with the cycles of novels "Immortal History" and "Immortal Guidance", is a grand epic which gives a lifelike and in-depth representation of the sacred revolutionary history of the leader and his noble

personality traits as a great man.

The novel is set in the historical period when the Supreme Leader was paving the way for making all the people well-versed in science and technology and the country a talent power after kindling the flame of a revolution in education in the new century.

Technical innovations help increase power generation

The Pukchang Thermal Power Complex is intensifying the mass technical innovation drive to increase the production of electricity.

More than 90 valuable and rational technical innovation plans have been introduced so far this year.

The complex developed a

hollow fly-ash insulating brick to use it in the overhaul of boilers and remodelled feed-water pump blades to raise heat efficiency and increase the output of each generating facility.

It also upgraded pump motors to pump up a larger amount of circulating water than before and introduced rational plans, including the one for setting up the system for preheating boilers.

In addition, it developed a metal-mould sand-compacting machine to produce hundreds of tons of spherical balls and recycled different kinds of gears and pinions by introducing a new welding method.

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COAL

Pukchang goes into top gear to increase output

Technical innovations help increase production

The Namdok Youth Coal Mine under the Pukchang Area Youth Coal-mining Complex takes the lion's share of the coal supply to thermal power stations in the complex.

This year the coal mine has employed over a dozen technical innovation plans to increase coal production.

It informatized its management and operation so that it can monitor and command all production processes in real time.

Most noticeable is the improvement of the anthracite coal mining process in the coal mine.

Typical example is the introduction of the "wide-area mining method using multipurpose inertia-type loader", which took the first place at the 34th national science and technology festival last year.

Generally, scraper chain

conveyor is used for mining coal in the coal bed on normal slope, water-bearing beds and watery areas and inertia-type load-haul-dumper is suitable for mining coal in gentle slope and waterless and collapsed coal.

The multifunctional inertia-type loading and transport equipment is simple in structure and light as compared to the previous scraper chain conveyor and inertia-type load-haul-dumper, while incorporating the transport principles of them both.

"Through the test run for introduction, it proved its applicability to the characters of anthracite coal mining and advantages," said Pak Yong Bok, coal mining workteam leader.

The coal mine also introduced plastic medal into the coal car instead of bearing.

It is said that the longer the tunnel and the more rail joints, the higher the abrasion rate of bearing of coal wagon wheels.

The technical personnel of the coal mine directed their attention to plastics among the materials to be used as a substitute for nonferrous metals. They succeeded in introducing plastic medal made from polypropylene whose industrial production is ensured at home to put coal transport on a normal footing, while saving 40 percent of materials it had used before.

The experience has now been generalized to all coal mines under the complex.

The coal mine also made 16 prop reclaimers to reuse 30 percent of props and applied a power-saving electric current stabilizing welder to practice.

By Yun Kyong Il PT

Wagons and spare parts fully provided

The Pukchang Coal-mining Machine Factory is making innovations in the production of coal wagon and different kinds of parts for coal production.

In recent years, the factory manufactured coal wagons, bearings, drilling heads, borers, pumps of all sizes

and multipurpose inertia-type load-haul-dumpers. It also made light and efficient compressors and new centrifugal local blowers to send them to coal mines.

Technicians of the factory refashioned a lot of equipment including 130 boring machine and large gear-cutting

machine.

Many workers are working on scientific and technological problems to improve the quality of products and increase production, being enrolled in the study-while-you-work system and the sci-tech diffusing system.

The factory is now conducting a dynamic increased production drive to exceed the peak-year level in production.

By Jong Hwa Sun PT

To improve supply service for coal miners



CHOE YONG NAM

The duck farm plays a big role in the supply service for coal miners.

The Pukchang Area Youth Coal-mining Complex runs a duck farm.

The farm raises not only ducks but pigs, fishes and greenhouse vegetables.

What is remarkable is that it widely uses agricultural by-products as feed, instead of cereal feed.

"Huge quantities of cereal feed are needed to breed ducks in large numbers. So we carefully explored the way to ensure a sufficient supply of feed," said chief engineer Kim Jun Sik.

According to him, if ducks, pigs and other domestic animals consume only cereal

Pillar of mine

"Our workteam leader always tells us to become intimate with each other before tunnelling," said a member at a high-speed tunnelling workteam of the 10th pit of Namdok Youth Coal Mine under the Pukchang Area Youth Coal-mining Complex.

The leader refers to Ro Chang Ho who was chosen as a central meritorious man of socialist patriotism this year.

He impresses others as a taciturn man. After his demob from the army, he was assigned to the coal mine as a tunnelling worker.

An Un Gyun, manager of the coal mine, compared him who has devoted his sincere efforts to digging out coal for scores of years, regardless of whether he is appreciated or not, to a prop.

His character of dedicating himself to others without a word was frequently revealed after becoming a leader.

First of all, he buckled down to turning his workteam into a harmonious family.

"He always leads others by setting practical example," said Kim Chol Jin, a chief of post.

He used to soak himself in a pit face with others and worked overtime for several days to improve technical skills of rookies. He also personally corrected some drilling holes selected in wrong places.

He prepared wedding spreads for the men under his charge and tried hard to take warm care of their life with the same mind as their parents would do.

"When my son was accidentally burned, Ro Chang Ho transplanted skin to him on double occasions," said Ri Kun Sang, another drilling worker.

There was a coal miner who became the target of criticism

feed without protein feed, it is impossible to increase meat and egg outputs, though spending of feed.

The farm pulverized such agricultural by-products as bean pods and stalks and mixed them with an additive made from decomposed duck feathers to make a new protein feed.

It also established a water lettuce cultivation ground to

from others. Ro helped him devotedly. Overpowered by Ro's affection and sincerity, the past "black sheep" became a labour innovator, as well as an active worker in the coal mine.

He receives wages as usual as others and leads a normal life.

"He spent many family savings to prepare dairy goats for his colleagues working in pit. When I helped him building a greenhouse in a kitchen garden to supply other drill workers with fresh vegetables even in winter, I felt he is living for others," said Ro's wife Kim Hyang Suk.

Following in his examples, Kim also became a "private cook" of the workteam.

United efforts bore good fruits in production.

The workteam members pooled their efforts and wisdom to develop several technical innovations and original ideas, including a new blasting method of further speeding up tunnelling even under unfavourable lithological conditions and a water-jet dust collector by dint of compressed air.

At present, his workteam is regarded as a model of the complex.

By Kim Il Jin PT

make a fermented feed with a high nutritional value and digestibility.

"Duck excrement contains proteins yet to be broken down. We get feed for pigs by fermenting them," said breeder Kil Son Ae.

The farm also uses pig faeces for growing greenhouse vegetables and farming fishes.

By Chae Hyang Ok PT



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CHAE HYANG OK

Ro Chang Ho (left) drills at a coal pit.

UPGRADING

Modernization drive helps keep factory afloat

The Songyo Foodstuff Factory in Pyongyang turns out many kinds of processed foods including confectionery.

"It is all thanks to the factory's strategy of giving precedence to modernization of production processes that we could make such marketable foodstuffs," said manager Han Kyong Suk, adding they directed primary efforts to boosting the productivity of the facilities.

The factory has newly introduced an automatic bread packing machine that can package breads in different sizes. Equipped with an elaborate control system, it can automatically sort and package a large amount of breads. According to engineer Kim Chung Il, the introduction of the machine reduced the labour to one third and the production cost to one fourth in the packing

process.

The factory newly furnished the fermentation room in the bread production line so that it can control temperature and humidity, thus expanding its fermentation capacity.

It has also installed various kinds of jigs in the degenerated corn noodles production line so as to improve the quality of products.

Besides, it has upgraded over a dozen facilities including a rotary bread oven, dough conveyor, sugar moulding machine, drink injector and dosing dough feeder.



A woman monitors the production line at the Songyo Foodstuff Factory.

KIM HYOK CHOL

At present, the factory produces dozens of kinds of foodstuffs such as yeast bread, cake, peppermint candy, cream candy, degenerated corn noodles and peanut nutritive paste

By Kil Chung Il PT

AGROCHEMICALS

Effective biochemicals available

The plant disease prevention centre of the Rangnang District Cooperative Farm Management Committee, which is located on Pyongyang's Thongil Street, produces highly effective biochemicals.

"Highly efficient chemicals are indispensable for protecting crops and increasing grain yield," said director Kim Pyong Sok.

Until a few years ago, the centre depended on imported additives that are essential in producing biochemicals.

Imported additives, however, had less satisfactory effects in promoting the efficiency of biochemicals though their costs were high.

Therefore, the centre buckled down to the development of an additive relying on locally available raw materials.

Though they had to explore

a new way, the employees persevered in the development as they spent most of time in farm fields to conduct tests repeatedly for confirming the mixing ratio of raw materials for the additive.

"We were very delighted when we finally developed the new additive with the starting material and solvent we made with domestic raw materials," said a developer.

Then they established an additive production line to make biochemicals, which proved effective at cooperative farms in the district.

In the course of insect monitoring, they found out new characters of the paddy rice borer which was thought to be difficult to exterminate and the method of stamping out the harmful insect with their biochemical.

The biochemicals of the centre are 80-90 percent efficient in killing major paddy rice blight and are able to eliminate various other pests. They can be applied to not only grain crops but also all other plants including vegetables and fruit trees.

Its biochemicals have been introduced into many cooperative farms across the country and are winning favour with them.

"We are now concentrating on preventing harmful insects and crop yield fall in the wake of recent floods and typhoons. Meanwhile, we are pressing on with the development of new products in order to increase crop output," said the director.

By Sin Pyol PT



CHAE MYONG RIM

Researchers examine the blight extermination effect of biochemicals at the plant disease prevention centre.

SPORTS EQUIPMENT

Factory broadens range of products

The Pyongyang Sports Goods Factory puts much energy into the development of new products.

In the past, the factory's production was mainly focused on various kinds of balls, gloves and nets.

In recent years, however, it has set its sights on developing a variety of gymnastic facilities and measuring instruments and directed efforts to this end.

In the course of this, it brought out a boxing ring.

According to experts, a boxing ring has a very complicated framework since it has to withstand furious bodily movements, strikes and impact between players.

The factory's technical staff intensified research to simplify the compages and make such indices as the ring size and reinforced layer formation, canvas elasticity and prevention of deformation up to the international standards. Rotating corner stools were installed on the four ring post. Consequently, it ensures safety of boxers and convenience of

coaches.

It also developed several kinds of facilities for physical training.

Among them are throw practicing apparatuses in various weights for judo, an inflatable free-kick wall for football and adjustable dumbbells.

Besides, it made a hand-dynamometer, spirometer and speed power gauge and a ball for three-person basketball.

"With the production of these instruments, our factory has come a step closer to sportspeople and enthusiasts," said chief engineer Kim Thae Sop.

The factory's "Taesongsan"-brand sports goods have nearly doubled in kinds and more than trebled in varieties as compared to those four years ago.

"Sports goods continuously change and develop in form and content as sports themselves develop. We will work harder to develop and produce more high-quality sports goods," said manager Jang Sok Ha.

By Kim Kum Myong PT



JON KWANG HUN

Technicians discuss how to raise the quality and variety of products at the Pyongyang Sports Goods Factory.

PHARMACY

Controlled-release medicines developed

The drug form development lab under the pharmaceutical faculty of Pyongyang University of Medical Sciences develops highly-efficacious controlled-release medicines.

Section chief Pak Chol Min said that the controlled-release technology helps prolong medical efficacy and save lots of medicines while reducing dosage.

According to him, his lab was engrossed in the study of controlled-release coated tablets using the ethyl cellulose water dispersible coat.

The diclofenac sodium coated tablet and acorn coated stegnotic tablet developed in

this course prevent side effects on gastrointestinal tracts and improve treatment effects.

The lab also develops different controlled-release percutaneous absorbent as diclofenac sodium adhesive plaster which promotes skin penetration and nicotine patch controlling skin penetration.

Researchers said that the plaster has better local treatment efficacy than oral method and injection. The plaster increases the per-hour skin absorption of diclofenac sodium and ensures reasonable adhesive power and flexibility.

The research team is now working on the research and

development of controlled-release orally disintegrating tablet using nanocellulose and others.

The tablet is a new type of medicine which is disintegrated or dissolved in dry mouth in 30 seconds and it is much favoured by patients, especially children and the elderly who have trouble in swallowing medicines.

Meanwhile, the lab also produces various equipment and measuring instruments necessary for the pharmacy of latest medicines.

To name just a few, a magnetic stirring reactor which is designed to automatically control the agitating speed and reaction time and an experimental spray dryer for making controlled-release microcapsule which is cost-effective and satisfies all performance indices.

By Ri Myong Jun PT

TREE

Yonthan benefits from black chokeberry

A large proportion of Yonthan County in North Hwanghae Province is covered with forests and especially black chokeberries can be seen everywhere.

It is a feast to see their red leaves and black ripe fruits in mountains, gardens and parks in autumn.

A black chokeberry begins to bear fruits when it is three years old, yields 20 kilograms of them at the maximum and is productive for more than 20 years. The fruits contain appropriate amounts of sugars and organic acids and are rich in various vitamins and microelements. They are of high food

value and good for treating arteriosclerosis, hypertension and cardiovascular diseases.

“Our county started planting the tree over 10 years ago. We have been gathering large quantities of the fruits every year and gaining substantial economic benefits from them,” said a county official.

The county source mobilization company alone cultivates the shrub in scores of hectares of land. Dozens of tons of the fruits are expected to be gathered this year. At present, the company is busy processing them as soon as they are collected.

The essence and tea, its black chokeberry products, are

popular as they help supplement diet with vitamins and strengthen the blood vessels, while having a good effect on the cardiovascular system.

“We can earn bigger profits from the fruits of black chokeberry only when we process them. Our processed products are well known to our county and province and beyond. We are planning to produce more health foods with them such as jam, jelly and juice,” said manager Kim Yong Chol.

The county expands the area of black chokeberry forests every year according to a phased plan.

By Yun Kyong Il PT

VEGETABLE

A variety of species registered on list

The Pyongyang Vegetable Science Institute under the Academy of Agricultural Science recently bred several vegetable varieties with high productivity and nutritive values, which have been registered as state varieties.

A new *Solanum lycopersicum* variety, or “lined tomato”, produces apricot-big fruits dangling from the same stem like a fat bunch of grapes.

“The lined potato bears 10 to 12 fruits in a bundle on average, 16 at maximum and it has 1.4 times higher content of lycopin than ordinary tomatoes. With an average per-hectare yield of about 30 tons, it can be raised in spring and autumn and as it is gathered in bunches, promotes work efficiency and is of high ornamental value,” said section

chief Ma Yong Min.

The institute also acclimatized several tomato varieties that are widely used in dietary life in the world, such as “coloured small tomato”, “green tomato” and “creased tomato”, all *Solanum lycopersicum* varieties.

“Greenhouse hot pepper No. 1”, a new variety of *Capsicum chinense jacq*, is said to be over 150 000 SHU hot, which is seven to eight times higher than ordinary dried pepper varieties for kimchi making.

The researchers are now working on the projects to widely spread new good varieties of watermelon and melon of very high productivity in the greenhouse.

By Jong Chol PT

BIRD

A step forward made in artificial breeding of goshawk

Ornithologists of the DPRK have succeeded in artificial breeding of goshawk.

In 2015 researchers of the zoology institute of the State Academy of Sciences brought four 15-day-old goshawks for artificial breeding from the area of Sangdol-ri in Toksong County, South Hamgyong Province, a goshawk sanctuary. The birds of prey grew up and a female bird began to lay eggs in 2018.

Artificial breeding of predatory birds of forest is known to be very difficult worldwide.

Wild raptors like goshawk inhabiting remote mountains are so sensitive to surroundings they hardly copulate in enclosed space.

“Even though they had copulation in the cage, the female bird laid unfertilized eggs, and even at some noise or

slight mistake by the breeder it did not sit on eggs but dropped them,” recalled Kim Kyong Jun, deputy director of the zoology institute.

Researchers studied goshawk’s scope of activity and eating habit in nature and, based on this, altered the environment of the breeding place close to a natural forest while conducting research for improving nutritive conditions.

They managed to hatch the eggs of a goshawk for the first time in two years, but the chicks were dead in no more than 20 days.

The researchers solved problems related to breeding including the mixing of feed additives and nest building and succeeded in artificial breeding in three years.

A goshawk that hatched on June 1 and two others on June 7

are now able to fly.

“We have taken the first step in artificial breeding of goshawk. Our next research target is the reproduction of goshawk based on artificial hatching and insemination,” said the deputy director.

By Ri Sung Ik PT



RYANG KUM CHOL
A researcher measures the concentration of nutrient solution for growing tomatoes.

THERAPY

New Koryo therapies introduced

The Pyongyang Municipal Koryo Medicine Hospital is applying a variety of new Koryo medical treatment methods to clinical practice by intensifying research into treatment of women’s diseases.

“In many cases, surgical operation was believed to be unavoidable for the treatment of myoma, which has relatively high morbidity of all women’s diseases. We have applied a therapy which combines Koryo medicines and carbon daylight treatment device to such patients to raise therapeutic effect while preserving the internal organs,” said Pak Yong Ae, head of the gynecological department.

The therapy helps improve the rate of complete cure of inflammatory diseases that do not react well to various antibiotics.

The health workers of the hospital established another alternative therapy for the treatment of mastitis by combining caloripuncture and *Lonicera japonica* broth,

and fully demonstrated its effectiveness in clinical practice.

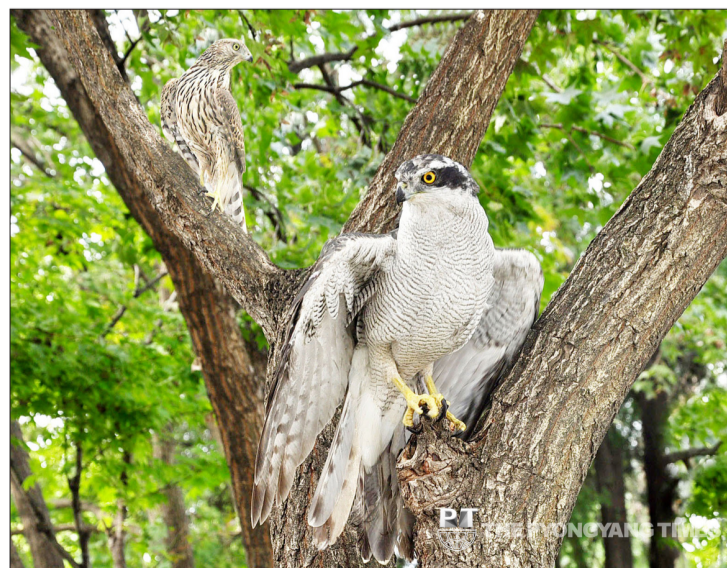
The hospital improves the treatment efficiency of slipped disk, nervous system disorders and locomotive system diseases by introducing various massage therapies including nervous reflex therapy.

“I had to spend six months

bedridden with slipped disk. But after receiving massage therapy for two months in the hospital, I got back on my feet and began to teach again,” said Ri Chun Mi, lecturer at Pyongyang University of Architecture.

The hospital has introduced a therapy, which is a combination of acupuncture, moxibustion, cupping and injection into acupoints, to cure facial paralysis, aftereffects of cerebral concussion and cervical spondylosis.

By Yun Ki Song PT



KIM HYOK CHOL
Young goshawk (left) raised by artificial breeding.



CHAE MYONG RIM
A doctor applies a new treatment method to a patient at the angiocardiology department of the Pyongyang Municipal Koryo Medicine Hospital.

URBAN FARMING

Window farming brings tangible benefits

It is a current global trend to cultivate vegetables in urban houses and use fresh veg in dietary life.

Out of different methods, people take special interest in window farming which enables them to do vegetable farming efficiently in a limited space in all seasons.

Window farming is to raise leaf and fruit vegetables using nutrient solution by fixing various cultivation arrangements by the sunny window.

The Pyongyang Vegetable Science Institute conducted an in-depth study of window farming to establish a new soilless cultivation technology and unveil various forms of cultivation arrangements.

"The window farming we completed enables you

to grow such leaf and fruit vegetables as spinach, lettuce, cabbage, cucumber and tomato by employing hydroponic cultivation using nutrient solution," said researcher Nam Mun Su. "You can also raise such ornamental plants as flowers."

The arrangements in window farming come in dozens of forms including petal, flowerpot, column, table and wall greening. It can be applied to any rooms with sunny windows at home or office and makes it possible to produce clean and fresh vegetables all the year round.

Window farming accelerates the growth of plants as nutrient solution is used and raises good quality vegetables free from blight 50 percent earlier than soil cultivation.

As air in the room gets fresh and a green environment is created, there is an aura of nature at home or office.

Window farming is practicable as unique and convenient cultivation arrangements can be made easily with such readily available domestic waste as plastic box or bottle.

"Demand for window farming is growing steadily," said deputy director Ri Myong Song.

Window farming has been introduced into public buildings and dwelling houses on Ryomyong Street and other places in Pyongyang, bringing tangible benefits and creating green environment. It has also proved efficient in the Yangdok Hot Spring Resort.

By Pang Un Ju PT

RESERVE

Nature reserve known for mixed broadleaf and needle-leaf forest

The Ogasan Nature Reserve is situated on the boundary between Kim Hyong Jik County of Ryanggang Province and Hwaphyong County of Jagang Province.

Mt Oga, whose name is derived from the fact that five beautiful peaks stand up in the dense primeval forest, is 1 227 metres above sea level and its annual precipitation is about 1 080mm.

"As it geographically stands between the temperate northern plant distribution and subarctic plant distribution areas, Mt Oga has many plant species in the composition of species in comparison to its area," said Jang Sun Son, head of the management station of the Ogasan Nature Reserve.

According to him, world-famous primeval forests are almost all pure forests and it is hard to find such a mixed forest of broadleaf and needle-leaf trees strangely situated

on the boundary between the subarctic and temperate plant distribution areas as in Mt Oga.

For this reason, the 6 500-hectare nature reserve has well over a thousand animal and plant species and lots of living monuments.

"Some 120 species of medicinal plants, over 50 species of plants for timber and similar numbers of edible plant species are distributed in the reserve," said Ryom Chol Hun, who has studied its ecosystem for decades.

"The reserve has diverse and rich distribution of useful plants partly because of its special natural and geographical position. But more important is that it is provided with an ideal environment."

He said the mountain has considerable soil depth and a thick layer of humus-rich soil, which provides favourable conditions for the

growth of big trees. In addition, as it adjoins the remote primeval forests, rare medicinal plants like wild insam grow in large numbers, he added.

Many of the trees growing in Mt Oga are 300-400 years old. Among them are over 1 100-year-old *Taxus cuspidate*, over 700-year-old linden and over 500-year-old pine-nut tree in Kasan Pass.

Mt Oga is also home to hundreds of species of animals including mammals, birds, reptiles, amphibians and fishes.

The nature reserve with rich fauna and flora presents spectacular scenery in all four seasons.

Early in September an exhibition hall of animals and plants with a total floor space of over 300 square metres was inaugurated in the reserve to give wide publicity to its rich biodiversity.

By Kim Kum Myong PT



Part of the newly-built animal and plant exhibition hall of the Ogasan Nature Reserve.

PROFILE

Young worker writer

Generally, a novel is said to be the product of the writer's rich experience of life, ample knowledge, deep thinking and relentless quest for knowledge. So a fine literary work often reminds readers of at least a middle-aged and other senior person of high intelligence.

But Son Su Gyong (pictured), a worker at the Phyongwon County Foodstuff Factory, South Phyongan Province, is a 20-year-old woman. She won the top honour at the short story division of the national mass literary work prize contest which took place in celebration of the Day of the Shining Star last year.

"Her short story *Small Cup* was published in Chongnyon Munhak magazine, leaving many readers with a strong impression. It drew an encouraging response from the jury members and many literary enthusiasts as it gives so lifelike a portrayal of the people's life in detail with true events as to surprise even professional writers," said Son Yong Bok, a judge of the Central Committee of the Writers Union of Korea.

A winner of several mass literary work prize contests, Son is affectionately called a "worker writer" by her villagers.

She liked to solve math problems not by existing formulae or methods, but by her own style from her childhood. She began to learn literature at a literature hobby group during her junior middle school days and has since written lots of children's verses and songs.

She was highly appreciated several times in the provincial and national composition



contests, which led to her win of an "Our Classroom" Literature Prize and two Youth Literature Prizes.

"Son Su Gyong has an inborn talent for literature," said Kim Song Hui, Son's literature teacher. "Son could receive professional education at the college, but she chose a working career, saying she wanted to have first-hand life experience at a factory."

Son wrote short stories by reflecting her own experience and feelings at her leisure while working at the factory.

As they are thick with the pride of working life and vividly depict the beautiful life of the people, her products were carried by literary magazines in succession, and literature experts and enthusiasts lavished praise on them.

Her another short story *Trainee Teacher* won the national mass literary work prize contest in celebration of the Day of the Shining Star this year.

By Kwon Hyo Song PT

WORKING LIFE

Work enjoyable with music

"I feel pleasant especially in the morning. Pleasing events that happened in my workplace come into my head on my way to work and I get itching to hear more happy news there," said Kim Hak Gwon, employee at the Pyongyang Trolley Bus Factory.

According to him, the sound of cheerful singing by the members of the mobile artistic motivational team greet the employees at the entrance of the factory every morning, encouraging them to make innovations.

They conduct motivational activities also at workplaces, which proves very inspirational for workers.

They prepare songs and witty talks and convey news about innovators and laudable deeds done by employees in various forms of artistic portrayal.

It happened in 2018 when the factory was engaged in

manufacturing a new type of trolley bus on an experimental basis. Pak In Chol at a processing workshop worked overtime for several days to take upon himself the task assigned to Sin Yong Nam who was ill.

Upon grasping the fact, artistic team members depicted the commendable deed in a poem. Highly encouraged by the poem, the workers of the same workshop overfulfilled the day's assignment by 50 percent.

With such encouragement, the workers of the factory finally made the trial product in August 2018.

Supreme Leader Kim Jong Un was very pleased to see the trolley bus and got on the bus on a trial run.

The factory's successes are partly attributed to the efforts of the artistic motivational team.

By Ri Sung Ik PT

JAPAN

Menacing military moves

Japan is increasingly hell-bent on military buildup. Under the pretext of “defence vacuum” created by the withdrawal of the plan for deployment of Aegis Ashore, the ground-based missile defence system, Japan is trying to build a special warship to provide against ballistic missiles and equip itself with missiles with the range of over 500km by 2022.

The revelation of its ambition to possess the “enemy base attack capacity”, which is advocated by Japan after the withdrawal of Aegis Ashore deployment plan, is a dangerous move to wrecking regional peace and stability.

Japan converted all its armed

forces into offensive-oriented ones beyond the confines of exclusive defence on the pretext of protecting itself from the threat from neighbouring countries.

The Japanese Self-Defence Forces have already attained the level of military powers in terms of long-range transport capacity, air force, space operation force and missile attack capacity.

In the near future, the world will face substantial threats if the vessels of the Maritime Self-Defence Force loaded with all kinds of missiles roam around the five oceans of the world, to say nothing of its surrounding waters, under the excuse of intercepting “enemy missiles”.

Though Japan argues for “self-defensive counterattack capacity” and “proactive self-defensive capacity” to evade the blame of the world, it can never cover up its ill intention lurking behind them.

Japan’s arms buildup plan is nothing but an attempt to widen the striking scope of its maritime force and put its neighbouring countries in a constant striking range in order to rapidly provide favourable conditions for the invasion of the Asian continent.

Recently, Japanese politicians did not conceal their preemptive striking scheme, saying “any country, which is going to break the maritime order, will have to pay dearly for that” and “Japan

has to possess the capacity for checking the ballistic missile launch even in the territory of an opponent country”.

It is the same old trick of Japan to aggravate the regional situation and realize its wild ambition of overseas expansion inch by inch.

World media outlets commented that though the Japanese constitution prohibits the possession of offensive weapons, the situation has begun to change, saying Japan will not exclude the possibility of using offensive weapons by its special warships and it will pose a serious threat to regional peace and security.

KCNA

RUSSIA-NATO

NATO’s approach gets on Russia’s nerves

NATO’s military moves against Russia are getting more threatening.

NATO is hell-bent on the militarization in the waters of the Black Sea and is developing the military infrastructure of East European allies. Airports, naval bases, ports, roads and railways are upgraded. Installations for the stationing of troops and storehouses for weapons and technical equipment are being built.

NATO is continuing to deploy the missile defence system around Russia.

And the number of flights of NATO reconnaissance planes near the Russian borders has increased by 30 percent as against last year. The reconnaissance flight numbered 87 in August last year, but it

reached about 120 in the same month this year.

Russian Defence Minister Sergey Shoigu revealed this in an interview with Russia’s 24-hour TV channel on September 6, adding that such a flight was made once in a while in the past without assuming the periodic nature as it is today, and that most of the flights were aimed at reconnaissance, but now military drills in simulation of missile attack are waged regularly involving many war planes.

It should be remembered that such military activities are conducted on the occasion of domestic or international events in Russia.

In May, Russia celebrated the victory in the Great Patriotic War. Timed to coincide with the event, a flotilla of warships

belonging to NATO’s combined naval forces was deployed in the waters of the Barents Sea for the first time since the end of the Cold War, including three deep-sea destroyers performing the duty of missile defence.

During the recent international military technology forum “Army-2020” and the international military games in Russia, NATO organized a large-scale combined air drill. Involved in the drill were more than 50 fighter jets including a strategic bomber B-52. Most of the flights were made near the Russian airspace.

In the wake of staging a marine operational exercise in the Baltic Sea in June under the cloak of “defence”, NATO began a three-day military drill in Latvia on June 29.

In July, warships and

aircraft of NATO conducted the “Sea Breeze-2020” in the northwestern waters of the Black Sea.

Russia sees these military drills of NATO as provocative ones aimed at the country.

Because the declarations for the summing up of all NATO summits, which have been held since 2014, defined Russia as the major threat to the security of NATO member nations, and the Western media continuously spearhead the large-scale anti-Russia propaganda campaign.

Anti-Russia remarks from NATO’s high-ranking officials and the attempts to obliterate the exploits performed by the Soviet people, who defeated Nazism and concluded the Second World War, are getting on Russia’s nerves more seriously.

Analysts express concern over all the moves of NATO, describing them as an attempt to repeat the history of confrontation in the Cold War era.

By Om Ryong PT

ENVIRONMENT

Plastic particles make inroads into human body

Of late, a joint research group comprising UK and Australian scientists released research findings after measuring the quantity of plastic particles inside sea creatures.

According to them, the contents of plastic remnants in tissues amounted to 0.04mg in squid, 0.37mg in lobster, 0.1mg in oyster, 0.3mg in crab and 2.9mg in sardine.

The scientists asserted that calculated by general average dietary intake, approximately 0.7mg of plastics enters the human body whenever oysters

or squids are taken.

When sardines are taken, the plastic absorption is said to amount to 30mg, the equivalent of the weight of a grain of rice.

Plastic particles make their way into the human body through seafood and salt.

The faeces tests on people of eight countries in 2018 showed that a maximum of nine kinds of plastics was discovered from a person. Last year, a research result revealed that plastic residues were found in the blood and urine of juveniles.

And a recent research report said that even vegetables and

other farm produce contain plastic particles.

People had already worried that plastic particles in soil might dissolve in irrigation water through secondary decomposition and contaminate crops. But they had also found solace in the thought that only plastics as small as 50nm could permeate plant cells.

Unfortunately, however, the new discovery proved that even those nearly 40 times bigger than the aforesaid size can penetrate the roots of crops.

A researcher who experimented on the roots of

lettuce and wheat said: “There are small gaps around new offshoots of rootlets and plastic particles go into the gaps to penetrate the tracheas of plants. Therefore, the particles much bigger than those we used in the recent research may be absorbed by plants.”

According to scientists, if minute plastics are absorbed by crops, people’s everyday foods will also contain plastic particles.

“Imagine your blood contains plastic particles. And yet, will you keep throwing away plastic bags anywhere?” said an Indonesian environmentalist.

Facts warn the international community of danger from minute plastics generated by plastic waste.

By Song Jong Ho PT

Briefly

Kenya

President refers to gravity of climate change

Referring to the gravity of climate change, Kenyan President Uhuru Kenyatta said on September 16 that natural disasters caused by climate change have plunged the world into a chaos together with the pandemic.

An unprecedented danger has been created to food security especially in Africa due to the inroads by the clouds of desert locusts, drought, flood and others, worsening the living conditions of farmers, he said.

China

Attention paid to education for ethnic minorities

The Sichuan provincial government in China is paying special attention to education in poor ethnic minority communities.

Recently, an ethnic minority autonomous region has conducted information activities to raise public awareness of education of children among the locals, while taking steps for building kindergartens in every village and improving educational conditions in schools at all levels.

Thailand

Recycling promoted

The Thai Ministry of Industry on September 14 said that six to eight recycling technologies are developed in the country every year.

The new technologies are reportedly being introduced into the recycling processes of about 300 businesses annually.

Anti-crime

Philippines, Iran launch campaigns against crimes

The Philippine police authorities said that the number of crimes has seen a decrease as of September 16 by 47 percent in the past six months as against before.

The Iranian police arrested a group of criminals attempting to transport narcotics to the central part of Iran from borders in Baluchestan va Sistan.

WHO

Warning against loosening anti-epidemic measures

The WHO American regional director, in an online presentation on September 16, warned Latin American countries against planning to loosen anti-epidemic measures.

He said that the number of people infected with COVID-19 increased 10 times in the border areas of Colombia in the last two weeks and the mortality from the virus is increasing in Mexico.

THE PYONGYANG TIMES

JUDO

Four-time world champ still feels herself at starting line

"I remember two competitions that left indelible impressions in my sporting life: the 26th Summer Olympic Games and the 2007 World Judo Championships," said four-time world judo champion Kye Sun Hui.

She confronted Japan's Tamura Yoko who had achieved brilliant results in dozens of international events in the final match of the women's judo 48kg category of the 1996 Summer Olympic Games in Atlanta, the US.

The result of the match between the international debutante and the veteran judoist with extensive international experience seemed to be too obvious even before it started. However, the match

ended with Kye overpowering the Japanese rival.

Later, she continued to snatch many medals on the international front. At the 2001 World Judo Championships in Germany, she defeated all the opponents and triumphed in the 52kg category.

Her dominance became recognized as unbreakable for her consecutive wins at the world championships in 2003 and 2005.

She was married at that time.

"There are many examples of women who became world champions after they got married in the history of sports," she thought, and decided to challenge.

Her sporting career continued

for six years after her marriage.

Her victory in the 2007 World Championships splendidly decorated her swansong.

During her professional career she broke the precedent in the judo world to win the world titles in three, 48, 52 and 57kg, events.

She was inducted into the Hall of Fame in 2018 by the World Judo Federation in recognition of her achievements, and her photo is hanging alongside those of world-famous sportspeople in the Olympic stadium in Switzerland.

Having qualified as a Class-B international referee in 2014, she is now working as judo head coach at the Moranbong Sports Club.

Her husband is also women's judo head coach at a prominent sports club in the country.

The affectionate and happy "judo couple" turn into the most formidable "foes" and rivals to each other during the judo season.

They have a cute four-year-old daughter.

"People call me a successful sportswoman, but I still have a mountain to climb. I have to qualify as a Class-A international referee while fulfilling my duty as a mother and wife. I think I've just started my life," said Kye Sun Hui, Kim Il Sung Prize winner, Labour Hero and People's Athlete.

By Om Ryong PT



CHAE MYONG RIM

Judo legend Kye Sun Hui (right) coaches judoists at the Moranbong Sports Club.

CUISINE

Korean traditional stew—jongol

Jongol (stew) is a Korean traditional dish with a long history.

It is served at popular restaurants in Pyongyang, including the Chongnyu Restaurant, the Sungni Restaurant in Changgwang food alley and the Tongchonho Restaurant.

It is cooked by boiling meat, fish, vegetable and other ingredients with some broth in a casserole.

It is said that *jongol* was first made in the period of Koguryo Kingdom (277 BC-AD 668).

One day Koguryo soldiers were fighting fierce battles against foreign enemies for several days in a place far from the supply base. They were running out of provisions. All that was left was cold and hard food which could not be eaten uncooked. But they had nothing to cook them in.

After thinking for a while,

they put the food in a helmet and boiled it on fire. The appetizing smell of boiling food incited the hungry soldiers to pick up the food as soon as it was done though it was so hot. However, it tasted really nice and they cooked foods in that way later.

A book in the period of the feudal Joseon dynasty (1392-1910), *Siuibang*, records in detail the recipe for *jongol*.

From olden times, Koreans have prepared *sinsollo*, a traditional dish in cooking brazier, or *jongol* for drinking

table or at feasts.

Jongol is served after boiling or uncooked by giving the diners the ingredients, a pan and a cooking stove so that they can cook by themselves.

It is classified into beef *jongol*, chicken *jongol* and squid *jongol* according to its main ingredient.

The traditional dish was inscribed as national intangible cultural heritage element No. 80 in 2017.

By Kwon Hyo Song PT



Beef jongol and seafood jongol.



LIVING MONUMENT

Rhododendron yedoense of Mt Myohyang

Rhododendron yedoense shrubs grow at the courtyard of the Puryong Hall, about eight kilometres away from the Pohyon Temple in Mt Myohyang, the celebrated mountain of Korea, along the Sangwondong Valley.

They have been growing there for nearly 600 years.

Their normal height is 1.5-2.9 metres and the stem is light brown.

There are many long trichome in the shape of thorn on young branches, but no trichome is seen on old branches and the colour is dark grey.

The leaves are in the shape of oval willow leaves and they are three to seven centimetres long.

Brown trichome is seen at the leafstalk and on the lower and upper parts of leaves.

The flower is four to five centimetres in size, and no leaves are seen in the flowering time.

The double flower does not fall readily and it is fruitless.

Rhododendron yedoense shrubs add a special touch of beauty to the scenery of the Puryong Hall as they blend in well with the dense forests of oak, maple and linden trees in the surroundings.

Designated as a living monument in January 1980, they are under good protection and management.

By Pang Un Ju PT

LEGEND

Author of four physical constitutions theory

Ri Je Ma (1837-1900) can be claimed to be one of the representatives of Eastern medicine in the 19th century.

He initiated the medical theory of four physical constitutions that holds an outstanding position in the development of Koryo medicine, or traditional Korean medicine.

Ri was born to a nobleman in Hamhung of the then Hamgyong Province.

Ri's mother died when he was three months old, so he grew up under the care of his grandparents. He was famed as a child prodigy as he learned national characters at the age of six, Chinese characters at a village school at seven, began to read the four major Confucian scriptures at eight and was conversant with famous history and Confucian classics at fifteen.

He read all kinds of books including those on military and medical sciences and he was appointed as Jinhae county governor and military official as well.

When the Korean feudal government concluded a subordinate and unequal treaty under the pressure of Japanese aggressors on Kanghwa Island, he resigned from his government office and devoted the remainder of his life to research into Koryo medicine in pursuit of the "Deliverance of the people".

In the long course of clinical practice, he discovered that even though the same medicine is

used for patients with the same disease, it produces different curative effects on each patient and therefore he asserted that to cure diseases, medicines should be used according to the constitutions of patients even though they suffer from the same illness. And on the basis of an in-depth study of physical constitutions, he came up with the medical theory of four physical constitutions in contrast to the previous theory on constitutional classification.

He made a comprehensive and careful observation of patients in such physical aspects as appearance, physique, relative proportions of the five viscera and six entrails and their reaction to medicines and such mental aspects as character, taste, talent, emotion and behaviour. On that basis, he classified people into *thaeyangin*, *soyangin*, *thaeumin* and *soumin* (or large Yang, small Yang, large Um and small Um persons), and prescribed medicines accordingly.

He formulated the treatment methods he researched and completed to hand them down to posterity.

He systematized his medical theory of four physical constitutions in the four volumes of Koryo medical classic called *Tonguisusebowon* which was compiled in 1894.

Ri Je Ma's medical theory was widely propagated to different foreign countries as well as at home.

By Han Kwi Hun PT

