

Change in the Making

The entire world finds itself in the grip of socioeconomic shortcomings of one sort or another. It is inevitable that this situation shall end up by executing major changes to and totally reorganizing the fundamental foundations of universal administrative methodologies and infrastructures.

The need for these unprecedented changes stems from the long term failure and neglect of tackling the shortcomings inherent in the very nature and essence of these old structures that are incapable of administering contemporary societies.

Self-serving and self-deluded executives charged with administering the socioeconomic programs of societies in many parts of the world, not only ignored and neglected to tackle the shortcomings and failures of their administrative systems but created totally false narratives to cover up realities and declare that all was well! Indeed they even took pride in their falsehoods as a sign of their superior intellect.

However the appearance of such changes at this time and in the current atmosphere, could very easily upend the entire socioeconomic order, just as surely as a persistent and out-of-control inflation would.

Be that as it may, to persist and thrive under such conditions and to try to minimize losses resulting from the coming changes, as well as partake of its eventual innumerable advantages, the only intelligent way forward must only be through tolerance, reason, and the required forbearance necessary to confront and conquer the upcoming changes.

Dr. Amir Houshang Amini

Iran's foreign trade during the five month of year 1397

(20 March 2018 to 20 August 2018)

According to the statistics of the I.R of Iran's Customs Department, the

Iran's foreign trades volume during the five month of the year 1397

are as indicated in the following tables:

Primary import/export statistics of non-oil goods with the calculation of gas's Liquidities during the five month of 1397

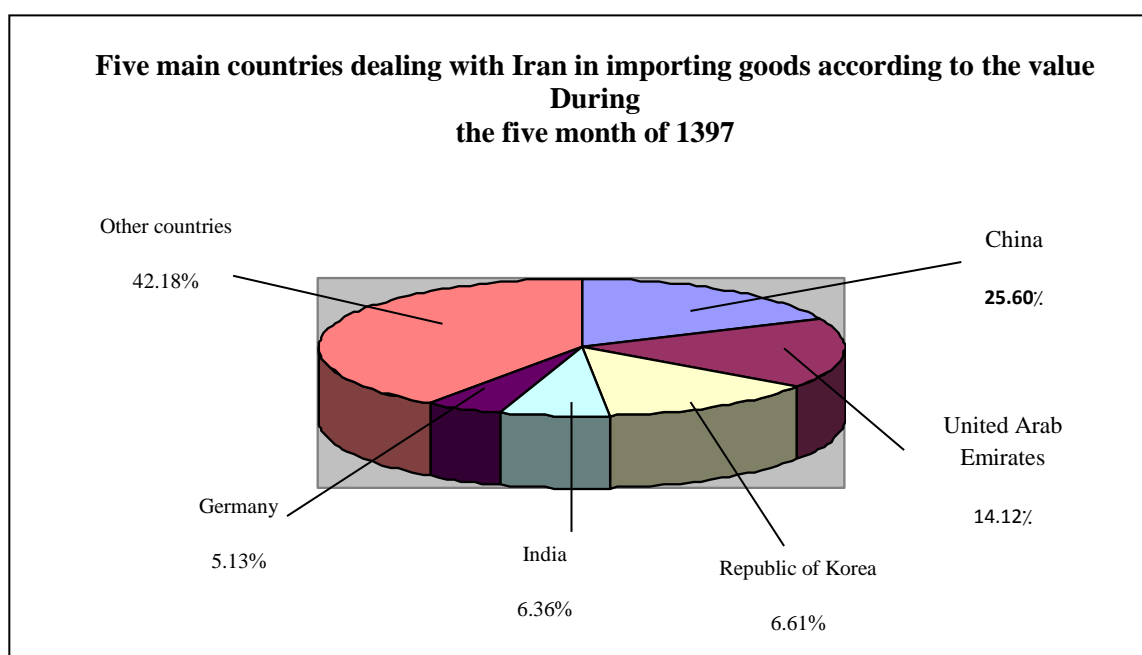
Activity	five month of the year 1397		five month of the year 1396		Percent of changes	
	Weight (Thousand tons)	Value (Million Dollar)	Weight (Thousand tons)	Value (Million Dollar)	Weight	Value
Import	13.963	18.893	14.826	20.913	-5.82	-9.66
Export	46.296	19.318	47.293	16.990	-2.94	13.70

Imports:

The most important imports during the two month of 1397, have been done with countries, as follows: 1) "China" with 1.467 thousand tons and 4.838 million Dollars and 10.51 percent of weight and 25.60 percent of value, 2) "United Arab Emirates" with 1.773

thousand Tons and 2.668 million Dollars and 12.70 percent of weight and 14.12 percent of value, 3) "Republic of Korea" with 456 thousand tons and 1.250 million Dollars and 3.27 percent of weight and 6.61 percent of value, 4) "India" with 911 thousand tons

and 1.201 million Dollars and 6.53 percent of weight and 6.36 percent of value and 5) "Germany" with 344 thousand tons and 969 million Dollars and 2.46 percent of weight and 5.13 percent of value.



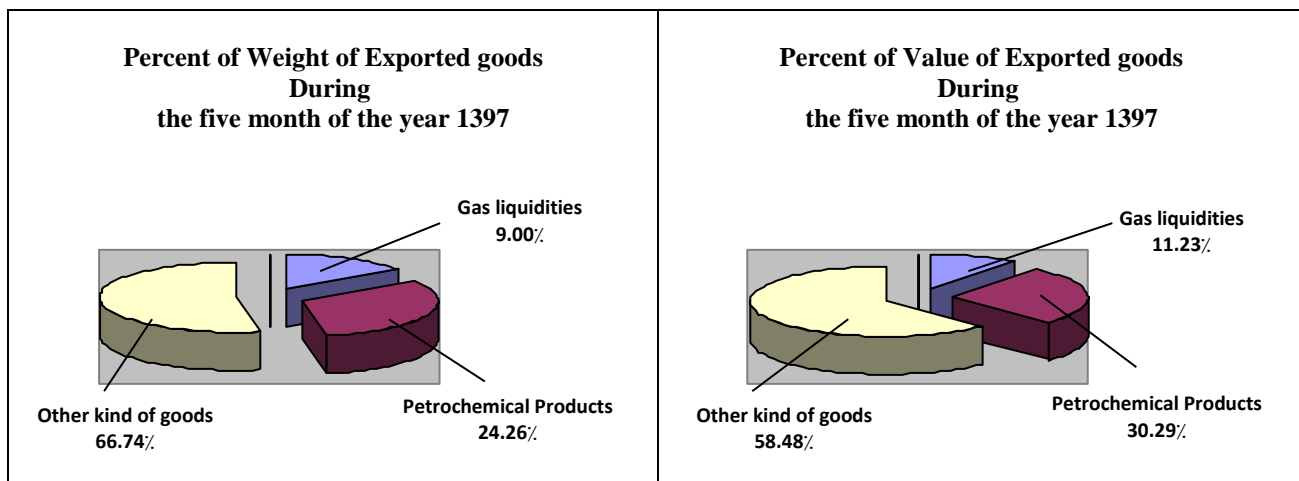
Exports:

During the five month of 1397, a compound of exported goods with the separation of gas liquidities,

petrochemical products and other kinds of goods such as industrial, agricultural, mineral, carpet and handicrafts are as follows:

**Export statistics of goods separating of gas liquidities, petrochemical products
And other kinds of goods during five month of the years 1396-97**

Sort of exported goods	five month of the year 1397		five month of the year 1396		Share of Total	
	Weight (Thousand Tons)	value (Million Dollar)	Weight (Thousand Tons)	value (Million Dollar)	Weight	Dollar
Petrochemical products	11.230	5.851	10.776	4.873	4.21	20.06
Gas liquidities	4.168	2.170	7.140	2.801	-41.62	-22.53
Other kind of goods	30.898	11.297	29.784	9.315	3.74	21.27
Total	46.296	19.318	47.699	16.990	-2.94	13.70

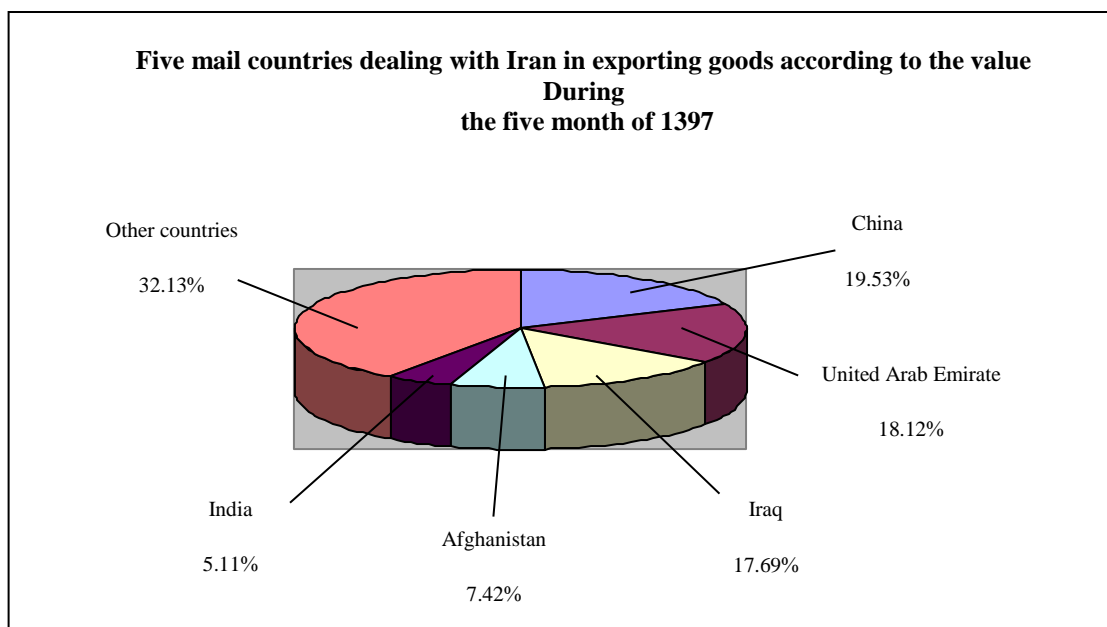


During the five month of 1397, most of exports have done with the countries, as follows:

1)"China" with 11.159 thousand tons and value of 3.774 million Dollars and 24.10 percent of weight and 19.53 percent of value, 2)"United Arab Emirate"

with 7.715 thousand tons value of 3.500 million Dollars and 16.66 percent of weight and 18.12 percent of value, 3)"Iraq" with 6.362 thousand tons and value of 3.417 Million Dollars and 13.74 percent of weight and 17.69 percent of value , 4)"Afgh-

anistan" with 2.794 thousand tons and value of 1.433 million Dollars and 6.04 percent of weight and 7.42 percent of value, and 5)"India" with 3.805 thousand tons and value of 987 million dollars and 8.22 percent of weight and 5.11 percent of value.



Average price of each ton of exported goods has been 417 Dollars, increasing 17.13 percent in value compared with the similar period last year.

Shahre Sookhteh



Shahre Sookhteh": One of the most advanced cities in the world

Shahre Soukhteh, that means "[The] Burnt City", and is also spelled as Shahre Sookhteh, is an archaeological site of a sizable Bronze Age urban settlement, associated with Hirmand. It is located in Sistan and Baluchistan Province, the southeastern part of Iran, on the bank of the Hirmand River, near the Zahedan-Zabol road. It was placed on the UNESCO World Heritage List in June 2014. UNESCO describes it as follows:

Shahre Soukhte, meaning 'Burnt City', is located at the junction of Bronze Age trade routes crossing the Iranian plateau. The remains of the mudbrick city represent the emergence of the first complex societies in eastern Iran. Founded around 3200 BC, it was populated during four main periods up to 1800 BC, during which time there developed several distinct areas within the city: those where monuments were built, and separate quarters for housing, burial and manufacture. Diversions in watercourses and climate change led to the eventual abandonment of the city in the early second millennium.

The structures, burial grounds and large number of significant artefacts unearthed there, and their well-preserved state due to the dry desert climate, make this site a rich source of information regarding the emergence of complex societies and contacts between them in the third millennium BC.

Brief Synthesis: Located at the junction of Bronze Age trade routes crossing the Iranian plateau, the remains of the mud brick city of Shahre Soukhte bear witness to the emergence of the first complex societies in eastern Iran. Founded around 3200 BCE, the city was populated during four main periods up to 1800 BCE, during which time there developed several distinct areas within the city. These include a monumental area, residential areas, industrial zones and a graveyard. Changes in watercourses and climate change led to the eventual abandonment of the city in the early second millennium. The structures, burial grounds and large number of significant artefacts unearthed there and their well-preserved state due to the

dry desert climate make this site a rich source of information regarding the emergence of complex societies and contacts between them in the third millennium BCE.

Criterion (ii): Shahre Soukhte exhibits a transition from village habitation to an urbanized community with significant cultural, social and economic achievements and developments from the late Chalcolithic to the early Bronze Age. The site is a rich source of information regarding the emergence of complex societies and some contact between them in the third millennium BCE.

Criterion (iii): Shahr-i Sokhta bears exceptional testimony to a peculiar civilization and cultural tradition that entertained trade and cultural relations with ancient sites and cultures on the Indus Plain, southern shores of the Persian Gulf, the Oman Sea and South-west Iran, and Central Asia. Archaeological remains and finds indicate the key role of the city on a very large scale in terms of working with metals, stone vessels, gems and pottery.

Criterion (iv): The ancient site of Shahre Sookhteh is an outstanding example of early urban planning: excavations have brought to light well-preserved evidence in the form of its mud-brick structures, burial grounds, workshops and artefacts that testify to its size, organization, the source of its wealth and its trade and social structures. The city was separated into various parts according to different functions - residential, industrial and burial; it therefore represents an important stage in urban planning in the region.

Integrity: All elements necessary to express the property's values are included within the property, which is of adequate size to ensure the complete representation of features and processes which convey the property's significance. The property does not suffer from development or neglect and it is well maintained. The understanding and appreciation of its remains rely on appropriate maintenance interventions and on a coherent setting.

Authenticity: In general, the surrounding desert landscape and extraordinary scatter of archaeological material present on the surface of the low hill of Shahre Sookhteh give a strong sense of authenticity, as does the sight of the complex architecture of the various parts so far excavated. The labyrinthine succession of rooms, corridors and courtyards give a genuine impression of these ancient buildings.

Protection and management requirements: The property is in State ownership and is protected by the provisions of the Law for Protection of National Heritage (1930) and of the related bylaw (1980). Shahre Sookhteh was registered in the list of national cultural properties of Iran as no. 542 in 1966. The property is also subject to the Regulations of Cultural and Historical Properties covering all works, research and data



Entrance to the Burnt City

organization. The property is further protected by a buffer and landscape zones where activities are regulated and subject to approval by the Iranian Cultural Heritage, Handicrafts and Tourism organization (ICHHTO).

The archaeological excavations and finds have been documented since the 1970s and records, inventory and finds are stored and analyzed at the ICHHTO multi-disciplinary Base at Shahre Sookhteh. The excavated remains are cleaned regularly during the year and Kahgel plaster is applied to conserve exposed walls.

The Iranian Cultural Heritage, Handicrafts and Tourism Organization (ICHHTO) manage the property on behalf of the government of the Islamic Republic of Iran by ICHHTO's Base at the property, located in the buffer zone, through a management plan that includes short, medium and long-term activities concerning research, conservation, visitor management and presentation.

The Base is advised by a steering committee comprising regional officials and experts and a technical committee comprising regional officials and experts. The Higher Education Centre of ICHHTO and national universities provide sources of expertise and training in conservation and management. The Research Organization of Cultural Heritage and Tourism is responsible for

multi-disciplinary research and training.

The reasons for the unexpected rise and fall of the Burnt City are still wrapped in mystery. Artifacts recovered from the city demonstrate a peculiar incongruity with nearby civilizations of the time and it has been speculated that Shahre-Sookhteh might ultimately provide concrete evidence of a civilization east of prehistoric Persia that was independent of ancient

Archaeology: Covering an area of 151 hectares, Shahre Sookhteh was one of the world's largest cities at the dawn of the urban era. In the western part of the site is a vast graveyard, measuring 25 ha. It contains between 25,000 and 40,000 ancient graves.

Entrance to the Burnt City

The settlement appeared around 3200 BCE. The city had four stages of civilization and was burnt down three times before being abandoned in 1800 BCE.

Period	Dating	Settlement size
I	3200–2800 BCE	10–20 ha
II	2800–2500	45 ha
III	2500–2300	100 ha
IV	2300–2100	

The site was discovered and investigated by Aurel Stein in the early 1900s.

Beginning in 1967, the site was excavated by the Istituto italiano

per l'Africa e l'Oriente (IsIAO) team led by Maurizio Tosi. That work continued until 1978. After a gap, work at the site was resumed by the Iranian Cultural Heritage and Tourism Organization team led by Dr. SMS Sajjadi. New discoveries are reported from time to time.

Most of the material discovered is dated to the period of c. 2700-2300 BCE. The discoveries indicate that the city was a hub of trading routes that connected Mesopotamia and Iran with the Central Asian and Indian civilizations, and as far away as China.

During the Period I, Shahre Sookhteh already shows close connections with the sites in southern Turkmenistan, with the Ghandehar region of Afghanistan, the Quetta valley, and the Bampur valley in Iran. Also, there are the connections with the Proto-Elamite cities of Khuzestan and Fars. During Period II, Shahre Sookhteh was also in contact with the pre-Harappan centers of the Indus valley, and the contacts with the Bampur valley continued.

Shahdad is another related big site that is being excavated. Some 900 Bronze Age sites have been documented in the Sistan Basin, the desert area between Afghanistan and Pakistan

Hirmand and Jiroft cultures¹:



Hirmand culture of western Afghanistan was a Bronze Age culture of the 3rd millennium BCE. Scholars link it with Shahre Sookhteh, Mundigak, and Bampur sites. This civilization flourished between 2500 and 1900

BCE, and may have coincided



with the great flourishing of the Indus Valley Civilization. This was also the final phase of Periods III and IV of Shahr-i Sukhta, and the last part of Mundigak Period IV. Thus, Jiroft and Helmand cultures are closely related. Jiroft culture flourished in the eastern Iran, and the Helmand culture in western Afghanistan represent the same cultural area.



Mehrgarh culture, on the other hand, is far earlier at the same time.

Iran's 'Burnt City', a Bronze Age archeological treasure trove, was once one of the world's largest communities at the dawn of urban settlement. The city, called *Shahr-e-Sookhteh*, sits on the banks of the Hirmand river along the Zahedan-Zabol road in the southeast province of Sistan.

Covering an area of 151 hectares, the city was built around 3200 BC and abandoned over a millennium later in 2100 BC. The city experienced four stages of civilization and was burnt down three times. It took its eventual named because it was never rebuilt after the last fire. The site was discovered in 1967 and has been continually excavated since the 1970s by Iranian and Italian archaeological teams; new dis-

coveries are reported from time to time. The oldest known backgammon, dice and caraway seeds and numerous metallurgical finds, such as pieces of slag and crucible, are among the city's excavated artifacts. The unearthed game of backgammon is made of 60 pieces from turquoise and agate, and has a rectangular ebony board.

Other objects found at the site include a human skull with signs that suggest brain surgery was conducted on it in this prehistoric city.

The striking find reminds one of "The Story of Sinuhe", written in hieroglyph during the Egyptian Middle Kingdom around 2000 BC, in which Sinuhe, an Egyptian nobleman and a physician in the court of Amenemhet I, gives an account of open brain surgeries. The unearthed skull in Iran's Burnt City has discredited the belief based on Sinuhe's account that brain surgery originated in Egypt.

More than 600 skeletal remains have also been unearthed so far from the Burnt City's necropolis. The remains had been buried in more than 108 graves with some of the remains grouped together into graves containing three to eight bodies. At least two of the multiple graves were family plots



apparently intended for family members who had died within a short period of time of each other. The deceased residents of the

Burnt City were buried in different positions - some were buried prostrate, some in a supine position and some lying on one-side. The most frequent position in burial was to lay the corpse on its side or to position the body into a kind of squat. Scientists believe that the variety in burial methods implies that different cultures co-existed within one society at the Burnt City.

- In December 2006, archaeologists discovered the world's earliest artificial eyeball. It has a hemispherical form and a diameter of just over 2.5 cm (1 inch). It consists of very light material, probably bitumen paste. The surface of the artificial eye is covered with a thin layer of gold, engraved with a central circle (representing the iris) and gold lines patterned like sun rays. The female remains found with the artificial eye was 1.82 m tall (6 feet), much taller than ordinary women of her time. On both sides of the eye are drilled tiny holes, through which a golden thread could hold the eyeball in place. Since microscopic research has shown that the eye socket showed clear imprints of the golden thread, the eyeball must have been worn during her lifetime. The woman's skeleton has been dated to between 2900 and 2800 BCE.

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gical finds (e.g. slag and crucible pieces), are among the finds which have been unearthed by archaeological excavations from this site.

- Other objects found at the site include a human skull which in-

dicates the practice of brain surgery and an earthen goblet depicting what archeologists consider to be the first animation

In one of the most recent discoveries from January, a team of Iranian and British anthropologists, working on human remains in the city from the 3rd millennium BC, identified a male camel rider who they believe was a messenger in ancient times.

Studies of the skeletal remains belonging to the man reveal evidence of bone trauma, suggesting that he was a professional rider who most likely spent most of his life on camel back.



Indications of riding are seen on the right leg bone of the man, who died at the age of 40 to 45. The swellings show that he continuously worked as a professional rider since he was a teenager. There are blade-shaped swellings on the lower part of the leg bone which indicate that he used to gather up his right leg while riding, suggesting that he rode on a large animal like a camel or ox. Although there is evidence showing that smaller draft animals were also used in the Burnt City, the act of gathering up a leg while riding is something that one does while riding a camel over long distances. Scientists, then, believe that the man was probably a courier who traveled regularly on camelback.

Some paleoanthropologists believe that mothers in the Burnt City had social and financial prominence. 5000 year-old insignias, made of river pebbles and believed to belong only to distinguished inhabitants of the city, were found in the graves of some

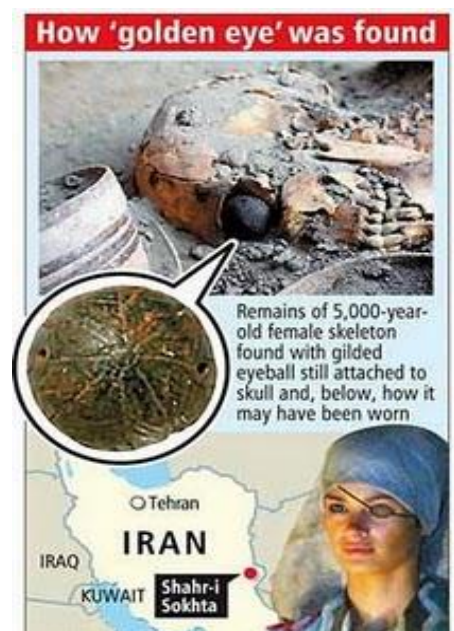
female citizens. Some believe the female owners of the insignias used them to place their seal on valuable documents. Others believe the owners may have used the seal to indicate their lofty status in society.

Paleopathological studies on 40 teeth unearthed in the Burnt City's cemetery show that the inhabitants of the city used their teeth as a tool for weaving to make baskets and other hand-made products.

"More than 40 teeth lesions have been identified, the most prominent of which belongs to a young woman who used her teeth as a tool for weaving baskets and similar products," said Farzad Forouzanfar, director of the Anthropology Department of Iran's Archeology Research Center and head of the anthropology team at the Burnt City in an interview with CHN.

The use of teeth as a tool in the Burnt City is seen in both males and females of different age groups. Evidence shows that weaving was more than a hobby in the prehistoric city. It was one of the most common professions in the city, which required a special skill. Residents made a variety of woven products such as carpets, baskets, and other household items.

Studies are currently underway



by anthropologists from Iran's Archeology Research Center and England's Newcastle University. The scientists hope to study bone fragments and teeth found in various parts of the Burnt City, especially those unearthed in its cemetery, which may unravel the mysteries over some of the most common occupations practiced by the region's inhabitants.

The reasons for the unexpected rise and fall of the Burnt City are still wrapped in mystery. What seems especially bizarre about the city is its incongruity with nearby civilizations of the time. It is as if the city just appeared out of nowhere. Shahr-e-Sookhteh could eventually be the evidence to prove that an ancient civilization to the east of prehistoric Persia was independent from the civilization of ancient Mesopotamia.

The excavations at the Burnt City also suggest that the inhabitants were a race of civilized people who were both farmers and craftsmen. No weapon has ever been discovered at the site, suggesting the peaceful nature of the residents.

The Golden-eyed Woman

In December 2006, archaeologists discovered the world's earliest artificial eyeball in the city's necropolis, thought to have been worn by a female resident of the Burnt City. The artificial eye is a hemisphere with a diameter of just over 2.5 cm (1 inch). It consists of very light material, probably bitumen paste. The surface of the artificial eye is covered with a thin layer of gilding and is engraved with a circle at its center to represent the iris. The eye includes gold lines patterned like the rays of the sun. A hole has been drilled through the eyeball, through which a golden thread is thought to have held the eyeball in place.

Microscopic research has revealed that the eye socket of the female remains bear clear im-



prints of the golden thread, suggesting that the woman must have worn the eyeball during her lifetime. With her shining golden eye she must have been a striking figure, perhaps a soothsayer or an oracle. The woman with the artificial eye was 1.82 m tall (6 feet), much taller than the average women of her time. She was aged between 25 and 30 and had dark, exotic skin. Her Africanoid cranial structure suggests her origins were the Arabian Peninsula. Experts say that her skeleton dates to between 2900 and 2800 BC, when the Burnt City was a bustling, wealthy city and trading post at the crossroads of the East and the West. It is thought that the woman may have arrived at the city on a caravan from Arabia. Archeologists have not yet revealed the cause of the woman's death.

The Ancient Courier

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Women's Role

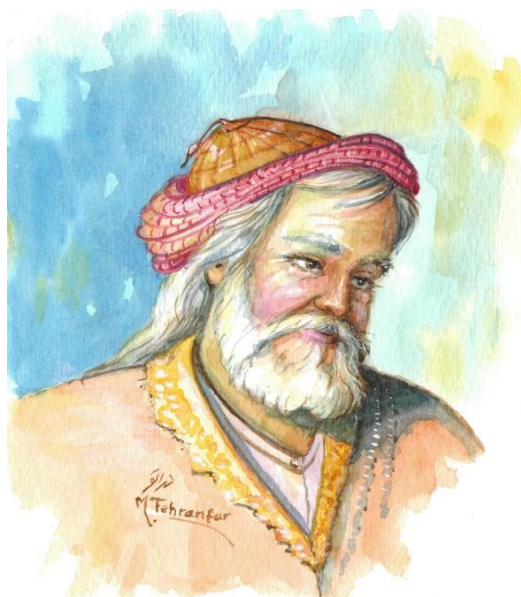
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www.en.wikipedia.org

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Omar Khayyam



In the year 1072 AD, Omar Khayyam documented the most accurate year length ever calculated – a figure still accurate enough for most purposes in the modern world. Khayyam was an astronomer, astrologer, physician, philosopher, and mathematician: he made outstanding contributions in algebra. His poetry is better known in the West than any other non-Western poet.

The man himself remains something of an enigma. Different biographers have documented him as a fun-loving, wine-drinking agnostic; a closet Zoroastrian; a Sufi Muslim; an orthodox Sunni Moslem; and a follower of Ancient Greek philosophy. All agree that he was an outstanding intellectual.

Beginnings: Omar Khayyam was born on May 18, 1048 in the great trading city of Nishabur in northern Persia. Today the city is in Iran. Omar's father was Ebrahim Khayyami, a wealthy physician. Omar's mother's name is not known. Some authors have written that Omar's father earned a living making tents, because Khayyami means tent-maker. However, although many English-speakers are named Smith, it does not mean

their fathers spent their days hammering hot metal on an anvil. Omar's family were Muslims. His father seems to have been relaxed about religion, employing a mathematician by the name of Bahmanyar bin Marzban, a devotee of the ancient Persian religion of Zoroastrianism, to tutor Omar. Bahmanyar had been a student of the great physician, scientist, and philosopher Aviceenna, and he gave Omar a thorough education in science, philosophy, and mathematics.

Anvari taught Omar astronomy, guiding him through Ptolemy's *Almagest*.

In his early teens Omar worked in his father's surgery learning about medicine. Omar Khayyam celebrated his eighteenth birthday in 1066. In the same year,

Halley's comet appeared in the heavens, William the Conqueror's Norman Army invaded England, and Omar's father Ebrahim died.

A few months after Ebrahim's death, Omar's tutor Bahmanyar also died. It was the end of an era in Omar Khayyam's life. It was time to put his family's affairs in order and move on.

Samarghand: the Omar Khayyam joined one of regular caravans making a three month journey from Nishabur to the great city of Samarghand, which is now in Uzbekistan. Samarghand was a center of scholarship, and Khayyam arrived there probably in 1068, aged 20.

In Samarghand he made contact with his father's old friend Abu Taher, who was governor and

chief judge of the city. Taher, observing Khayyam's extraordinary talent with numbers, gave him a job in his office. Soon Khayyam was given a job in the king's treasury.

While living in Samarghand, Khayyam made a major advance in algebra.

Omar Khayyam's Contributions to Science:

Algebra: At high school, we learn about equations of the form $ax^2 + bx + c = 0$; these are called quadratic equations. Cubic equations are of the form $ax^3 + bx^2 + cx + d = 0$. Naturally, cubic equations are harder to solve than quadratics.

Khayyam conjectured correctly that it is not possible to solve cubic equations using the traditional Ancient Greek geometrical tools of straightedge and compass. Other methods are required. At the age of 22, in 1070, Khayyam published one of his greatest



works: *Treatise on Demonstration of Problems of Algebra and Balancing*. In it he showed that a cubic equation can have more than one solution. He also showed how the intersections of conic sections such as parabolas and circles can be utilized to yield geometric solutions of cubic equations. Archimedes had actually started work in this field over a thousand years earlier, when he considered the specific problem of finding the ratio of the volume of one part of a sphere to another. Khayyam considered the problem in a more general, methodical way.



In the language of modern mathematics, Khayyam's solution to the equation $x^3 + a^2x = b$ features a parabola of equation $x^2 = ay$, a circle with diameter b/a^2 , and a vertical line through the intersection point. The solution is given by the distance on the x-axis between the origin and the (red) vertical line. Image by Pieter Kuiper.

Khayyam's solutions avoided negative coefficients and negative roots because negative numbers were not acknowledged in Islamic mathematics. (Some cultures, however, had incorporated negative numbers into mathematics – for example Brahmagupta had introduced negative numbers into Indian mathematics 400 years earlier.)

Although Khayyam's achievement was magnificent, he was

personally disappointed that he needed to utilize geometry to solve cubic equations – he had hoped to discover an algorithm using only algebra.

Treatise on Demonstration of Problems of Algebra and Balancing established Khayyam as a mathematician of the first rank, and his reputation spread quickly throughout Persia.

Following Khayyam's breakthrough there was little significant progress on cubic equations until 1535, when Niccolo Tartaglia found general solutions for all cubic equations.

Khayyam's algebra was not the system of letters and signs we use today. His algebra was expressed in words. So, where today we write:

Solve for x:

$$x^2 + 6 = 5x$$

Khayyam wrote: What is the amount of a square so that when 6 dirhams are added to it, it becomes equal to five roots of that square?

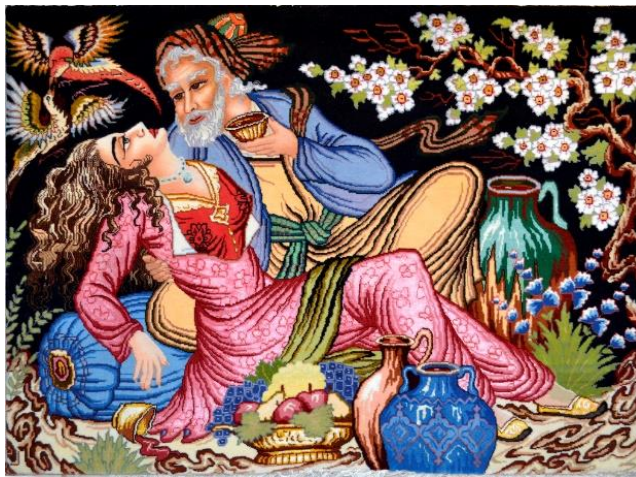
Linking Algebra and Geometry: Algebra and Geometry were successfully linked by Pierre de Fermat and René Descartes in the 1600s, resulting in the modern x-y coordinate system.

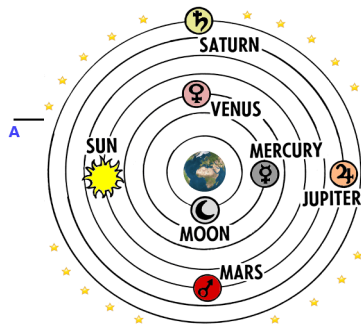
Khayyam's work with cubic had made him certain that algebra and geometry were linked, and he cited Euclid's *Elements* to support the idea:

Whoever thinks algebra is a trick in obtaining unknowns has thought it in vain. No attention

should be paid to the fact that algebra and geometry are different in appearance. Algebras are geometric facts which are proved by Propositions 5 and 6 of Book 2 of Euclid's *Elements*.

Length of Year: In 1073, Khayyam received an invitation to the Persian city of Isfahan, capital of the Seljuk Empire, to prepare a calendar that would work in an orderly way





and be accurate forever – this was an era in which year lengths were regularly changed. Khayyam's invitation came from the two most powerful men in the Seljuk Empire, of which Persia was part: these were Malik Shah, Sultan of the Great Seljuq Empire, and Nizam al-Mulk, his vizier.

Khayyam recruited other talented scientists to accompany him to Isfahan in 1074. There he was paid an extraordinarily high salary and enjoyed a privileged lifestyle. Malik Shah paid Khayyam to found an observatory with an initial aim of making observations of the heavens for 30 years, during which time Saturn, the most distant planet then known, would complete an orbit.

Ptolemy's universe – the model accepted by Omar Khayyam.

During his time in Isfahan, Khayyam measured the length of a year – to be specific the tropical year length – with remarkable accuracy and precision.

Khayyam found that 1,029,983 days made 2,820 years. This gives a tropical year length of 365.2422 days to seven significant figures. Although it has become fashionable to quote more decimal places than this, Khayyam's input of 1,029,983 days contains seven significant figures, so it is unreasonable to quote more than this number of significant figures in the calculated year length.

Today we know that the length of a tropical year actually changes by as much as 30 minutes from year to year. The average tropical year length quoted today is

365.242189 days, which to seven significant figures is 365.2422 days – exactly the figure Khayyam arrived at almost a thousand years ago. The length of a tropical year is also increasing very slightly as time passes, although not enough between Khayyam's era and our own to be noticeable on a scale of seven significant figures.

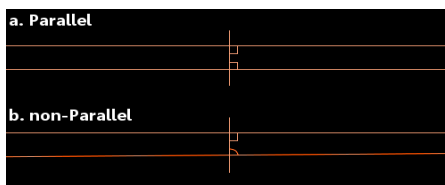
Malik Shah introduced Khayyam's new calendar in the Seljuk Empire on March 15, 1079. It was used until the 20th century.

The Parallel Postulate: The 13 books of Euclid's *Elements* published in about 300 BC were probably the most influential books in the entire history of mathematics. The *Elements* had been built on five geometric postulates – in other words five things that were assumed to be true about geometry: for example, all right angles are equal to one another.

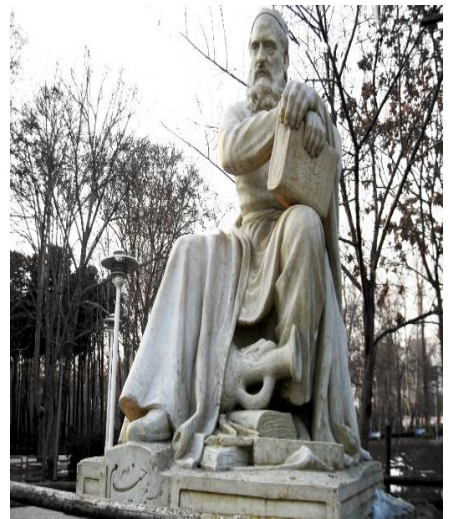
The fifth of Euclid's five postulates was the parallel postulate. The parallel postulate proved to be a source of puzzlement, irritation, and joy for mathematicians for millennia. The joy was usually short-lived, belonging to mathematicians who thought they had proven the postulate only to be disappointed when an error was identified in their 'proof'.

Euclid had considered a straight line crossing two other straight lines. He looked at the situation when the interior angles (shown in the image below) add to less than 180 degrees. In these circumstances, he said that the two straight lines will eventually meet on the side of the two angles that add to less than 180 degrees.

a. When each angle is 90 degrees, the lines are parallel.



b. b. If one or both of the angles



is less than 90 degrees, the lines will meet.

Since the time *Elements* was first published, mathematicians had been trying to use Euclid's first four postulates to prove the parallel postulate.

They were doomed to fail. We now know that it is impossible to prove the parallel postulate using Euclid's other postulates.

Omar Khayyam's attempt was interesting. In his *Explanations of the Difficulties in the Postulates in Euclid's Elements* he asks his readers to consider a straight line AB:

He asks his readers to consider two equal lines that are perpendicular to AB and sees three possible

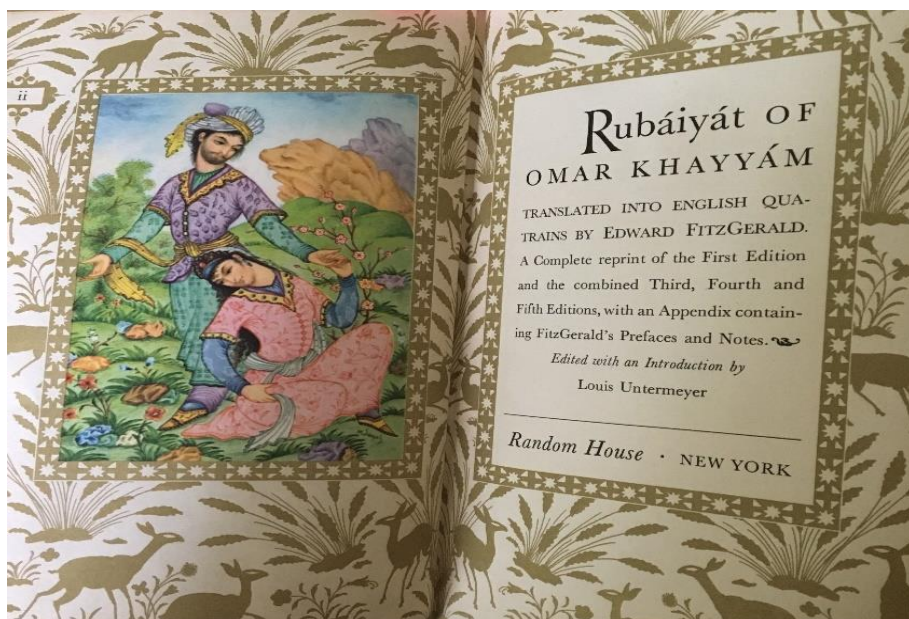


arrangements, which can produce four-sided figures:

He then refutes the possibility

that angles C and/or D can be anything other than right-angles and in the image above only the central option is possible. So, he believes he has proven the parallel postulate. In fact, he has not done so, all he has done is stated it in a different way.

What is interesting to historians of mathematics is that in Khayyam's ideas – shown roughly in the images above – they can see the first glimmers of non-Euclidean geometry.



Some Personal Details and the End:

Full details of Khayyam's personal life are not known. He is believed to have died in 1092, Malik Shah and his vizier both died – the first probably by poisoning, the second by assassination. Khayyam went into hiding during the resulting power struggle. His survival depended on lying low. He had been Malik Shah's personal physician and become his close friend to have married and had at least one son and one daughter. personal friend – which had made

him enemies – and Khayyam's poetry suggests his behavior may not have been devoutly religious – and this had also made him enemies. Khayyam actually published no poetry in his lifetime. Some of his musings would potentially have endangered his life.

After the power struggle, it took about 20 years for Khayyam to be fully rehabilitated and for him to emerge again, at 64 years of age, in the company of powerful people. However, he refused to

teach. One of his poems suggests why this might be:

*The secrets which my book of love has bred,
Cannot be told for fear of loss of head;
Since none is fit to learn, or cares to know,
Tis better all my thoughts remain unsaid.*

Omar Khayyam died at the age of 83 in his hometown of Nishapur on December 4, 1131. He was buried in a tomb whose location he had chosen in an orchard where blossom would fall twice a year.

Khayyam's poetry was popularized in the 1800s by Edward FitzGerald's translations in the *Robaiyat of Omar Khayyam*. Khayyam became so admired in the West that in 1963 the Shah of Iran had his grave exhumed and Khayyam's remains moved to a huge purpose-built mausoleum in Nishapur where tourists could pay homage to the great poet.

We shall end with one of Khayyam's most famous and evocative quatrains:

*"A Book of Verses underneath the Bough,
A Jug of Wine, a Loaf of Bread—and Thou
Beside me singing in the Wilderness—
And Wilderness is Paradise enow."*

Historic Friday Bazaar of Juybar, Iran



Tehran (ISNA) – There are so many weekly bazaars in most northern cities of Iran, known as Friday Bazaar.

Among all Friday Bazaars of Mazandaran province, located in north of Iran, Juybar city's bazaar is the largest and the most famous in this province. This ba-

zaar features a part in which famous Iranian foods such as "Kalle Pache", "Sirabi", "Liver", "Jaghor Baghor" and different kinds of kebab are cooked. Juybar city is the cradle of wrestling in Iran. The inhabitants of this city believe that consuming



healthy and fresh meat causes the brilliant performance of Juybar's wrestlers. In accordance with an old tradition, farmers of this city hold a feast in this bazaar after harvesting rice. Friday Bazaar of Juybar was built a hundred years ago.

Lalejin

Iran's Pottery Capital

As stated by a MNA reporter, the town of Lalejin in Hamedan Province, located 20 kilometers northwest of the city of Hamedan and considered as one of the oldest leading traditional producing centers of ceramics in Iran. According to archaeologists and historians, this ceramics-producing center has a long historical record dating back to 7500 years ago to ancient Persia, as revealed by excavations in recent years at Ecbatana Hill, Giyanⁱ in Nahavand and Noushijanⁱⁱ in Malayer in Hamedan Province. Hamedan, 30 workshops in Malayer, 17 workshops in Tuyserkan, 19 workshops in Razan, 1000 workshops in Lalejin, 20 workshops in Bahar, 14 workshops in Naha-



vand and 56 workshops in Assad Abad have been identified. A total of 1156 workshops and more than 6200 people working in these workshops are engaged in the production of pottery.

The most important pottery production center in Hamedan province is Lalejin. In addition to its reputation, Lalejin pottery has a worldwide reputation, and Lalejin



is the capital of Iranian pottery. Aljin (Lahadjin) is one of the northern cities of Hamedan province, located in the Lalejin district of Bahar. Based on the solar year census of 1385, Lalejin has a population of 14,724 people and is considered the second highly populated city in Bahar County. Pottery is the art of the ancestors of this city. The potteries of this area are of high quality and authenticity, and the people of Lalejin still use handcuffs to make pottery. The young people of Lalejin have continued to inherit the heritage of their fathers, where the Lalejin crafts became global. They make the potteries themselves. The city of Lalejin, with a population of about 15,000, has 850 pottery workshops and 250 pottery stores, contributing more than 20% of the province's exports.

The Witchcraft of Soil, Water and Fire

According to the archeologists and historians, from the time human beings got a decent understanding of the universe and moved from nomadic life to sedentism, clay accompanied him, and we can say that from the ninth millennia B.C. pottery is one of the oldest industries of homo sapiens in the world. The homo sapiens began paying more attention to storing their food and water and discovered the viscosity and malleability of clay and began making potteries in different shapes. From that time onwards, the craft of pottery was gradually developed and made widespread.

Hamedan's Lalejin is renowned



as Iran's capital of pottery and from 2017 it has been registered by the brand "Lalejin, the Universal City of Clay" in World Council of Clay. Some of the town's people believe the name of the city can be dated back to Genghis Khan (1162-1227) times. The small town of Lalejin celebrated its designation as the World Pottery Capital by the World Crafts Council.

¹ Giyan is a city and capital of Giyan District, in Nahavand County, Hamadan Province, Iran. At the 2006 census, its population was 8,062, in 1,999 families.

² Noushijan Tappeh is an archeological site in the west of Iran near Malayer. According to excavations from this site this area was not inhabited earlier than 800 B.C

Lalejin received the designation in July by the World Crafts Council - Asia Pacific Region - a UNESCO-affiliated institution that also bestowed the city of Mashhad in Khorasan Razavi Province the title of World Gem Capital last month.



Production of earthenware in the town dates back to 700 years ago, helping Lalejin become a hub for pottery in Iran. According to official statistics, more than 80% of the city's 15,000 residents are in one way or the other involved in pottery.

Receiving OBE by Martin Robert Johnston, the former BICC director general

Martin Robert Johnston, the former BICC director general, has been recognized as Officer of the Most Excellent Order of the British Empire on the Queen Victoria's Birthday Honours List 2018, for his excellent services to the UK trade as well as exports to Iran and mutual trade between the two countries.



The members of the board of directors of Iran and Britain Chamber of Commerce, Industries and Mines congratulate Mr. Martin Johnston on receiving this valuable order, and appreciates his highly effective cooperation in maintaining and developing business affairs between the two countries.

Hamedan hub of Asia Tourism in 2018



Tehran (ISNA) - Asia Cooperation Dialogue (ACD) picked the province of Hamadan in central Iran as Asia Tourism in 2018. Hamadan is set to host two major international events which can serve as good opportunities to make foreign tourists more familiar with its historical sites.



Hamadan will be the host of "Asia's Tourism Capital Conference" and "General Assembly of World Tourism Organization" in 2018. Due to its historical sites as well as cultural and natural beauties, Hamadan was elected as the hub of tourism in the ancient continent of Asia.

UK's trade envoy to Iran:

US running a real risk to international trading system



MEHR NEWSAGENCY
Photo: Mohammad Khodabakhsh

UK PM Trade Envoy to Iran Lord Norman Lamont of Lerwick said in an exclusive interview with Mehr News that US President Trump's extensive use of the sanctions regime is running a real risk to the international trading system.

Mehr News's exclusive interview with the former UK Chancellor and UK PM Trade Envoy to Iran Lord Norman Lamont also chairman of British Iranian Chamber of Commerce(BICC) at the British embassy in Tehran, as follows:

What is the current standing of economic relations between Iran and UK?

Well, Britain, historically, has had a lower level of trade with Iran compared to Germany, France or Italy. Nonetheless, from a low level, trade has been increasing in recent years, by over 20 percent per annum. So, before President Trump, trade was increasing at quite a fast rate from a low level. And that was about all one could have expected, anyway. But before President Trump, many firms in Britain were very excited for the opportunities that existed in Iran,

which are many; a very big market, sometimes described as the last great emerging market in the world, young and well-educated population, tremendous opportunities.

How has the impending reimposition of US economic sanctions against Tehran changed the level of trade transactions between the two countries so far?

Well, it's too early to say what the impact of US sanctions will be, but undoubtedly they will have some negative impact. The position of the British government is that we believe that the JCPOA was a big achievement and a win-win situation, as [Iranian Foreign Minister] Mr. Zarif has said. The British government, along with other governments, is taking measures to protect UK firms from the effect of sanctions, and that legislation, which is a European legislation, is now in force. But of course, the government will have to take further measures to protect trade.

How effective is the capacity of the two countries' private sectors for compensating for the limitations and obstacles ham-

pering trade transactions between states after the US withdrawal from the JCPOA?

Well, as far as the UK is concerned, it's the private sector that is the main engine of economy. I think the situation is different in Iran, where the role of the state is probably bigger. And there are a lot of semi-state organizations [in Iran]. We in the UK rely very much on the private sector to stimulate the Britain's exports. [The private companies] were fully prepared to do that, but the trouble is Mr. Trump has unilaterally torn up the JCPOA, which makes it very difficult for large companies in the UK because many of them have business in America and some of them have to choose between doing business in America or doing business with Iran.

Which large British companies have already abandoned their projects in Iran due to concerns over US sanctions?

Well, I'm not sure that I should name them because they may not have yet made a formal announcement, but obviously there are energy companies that are no longer here. British Airways has

unfortunately had to suspend its service here. Jaguar Land Rover have, I think, put on hold their plan to have a showroom here and sell their cars. And there are quite a number of British companies which have been affected in the energy sector.

And what about those small companies which may have decided to remain in Iran?

Well, I think small companies can cover a whole range of industries, but in many ways it's more difficult for small companies to come here. On another hand, they have the advantage of not having links with the United States, and therefore they are in many ways outside the reach of the jurisdiction of authorities in America.

So would you say that SMEs could be a way to overcome the limitations facing Iran's trade with UK after the reinstatement of US sanctions?

Well, I don't think that SMEs could really make up for the departure of large energy companies. But small companies could be subcontractors to larger companies. The problem is, they don't often have the knowledge of large companies. They don't know the market. They don't have the resources. Small companies are sometimes very enterprising and imaginative. I am



constantly amazed at what small companies do. They turn up in the most unlikely places, but it's not very easy to predict.

And what about cooperation between Iran and UK's chambers of commerce?

The British-Iranian chamber of commerce in London works very closely with the Iranian-British chamber [in Tehran]. We try to keep each other informed of the developments. We also have a system for supporting visa applications, which is one of the main sources of cooperation [between us]. The Tehran branch of the Iran-Britain chamber contacts us about visa application and we try to support them. We also try to

inform members about investment opportunities or public procurement opportunities, all these sorts of things. So the two work quite closely together.

Would UK strengthen its national currency in foreign trade transactions after Brexit? And if so, would the use of national currencies make a significant impact on the level of trade transactions between Iran-UK trade ties?

When UK leaves the EU, that's not going to affect our currency. Britain does not use the euro. It uses the pound and will continue to use the pound. I don't see that would affect it very much. Brexit for many people offers the opportunity to lay an emphasis on trade with non-European emerging markets. So many people might actually be more inclined to look at Iran after Brexit.

In a joint statement after a ministerial meeting between Iran and the remaining signatories to the nuclear deal on Sep. 24, EU promised the establishment of a "Special Purpose Vehicle" to facilitate trade with Iran. What does this mechanism actually entail, and is it really effective enough to escape US sanctions?

Well, it doesn't yet exist and it is still in the preliminary stages, so it's difficult to answer the





question as you put it. The problem that is being addressed is that European banks and UK banks that have connections to the American financial system often do not want to do business with Iran because they do not want to be denied connection to the American financial system. There are not many banks in the UK that don't have connections to America. So the idea of forming an SPV is to create a channel that will have no connection to the United States and could facilitate trade exclusively between European countries and Iran. This is a European initiative but Britain is part of it and a very keen supporter of it.

What is your personal opinion about the overall effectiveness of this mechanism?

Well, I think it's a very good idea. We've got to do something like this, because one of the urgent requirements of Iran, after sanctions are renewed in November, is the ability to get paid for their export of oil, gas, condensates, petroleum products, petrochemical products, etc. This is very much designed to help Iran with that particular challenge.

What is Britain's stance toward US foreign policies, par-

ticularly with respect to its trade war antics?

I can only speak personally. I don't, individually myself, support all of President Trump's actions on sanctions. It's not so much about a particular country. I think it's a danger that President Trump is using the weapon of sanctions far too extensively; sanctions against Russia, sanctions against China, sanctions against Turkey, sanctions against Iran, threat of sanctions against Europe, sanctions possibly against Canada. I personally think the United States is running a real risk of danger to the international trading system. Although I do think that President Trump has something on the case against China on intellectual property, I think one has to proceed carefully because if China and the United States start imposing tariffs on each other's trade, I think this could have big consequences for the world.

Iranian people took to the Twitter with the hashtag #nosanctionnowar to express their frustration and objection to US sanctions, which they say are actually targeting the ordinary people rather than the government as the US claims. What is your opinion on this?

Well, I'm not a great supporter of sanctions in general. And I think there are very few cases in history where sanctions have been effective in bringing about a political objective. One possible exception might be South Africa, or Burma, I'm not sure. But I don't think sanctions are generally very effective. And I think one of the reasons is that they hit ordinary people rather than the elite. The elite are often the people who can benefit from sanctions. They may have access to smuggling, to privileged supplies, [sanctions] hit them far less.

Iran says Trump's administration's unilateralism and contempt against allies and adversaries alike has isolated US. What is your take on the future of US' global standing if Trump's particular brand of foreign policies continues to persist?

Well, Britain is quite a close ally to the United States, but I think it shows UK's strength of feeling on the JCPOA that we have chosen nonetheless to take a very different position from the American administration. I think Britain will nonetheless remain quite close to America on a whole host of foreign policy issues and trade issues, but many people are nervous about the way in which the White House is handling international relations.

How do you evaluate the future of economic relations between Iran and UK in the light of the current situation?

Well, it's a bit of a setback what has happened with the American president, but I still believe that there are tremendous opportunities. I don't believe the present setup will last forever. And I believe that it is Iran's destiny to be integrated with the world economy.

Interview by: Marjohn Sheikhi, Mahboubeh Fakour

Jujube harvest in Birjand



Jujube for sleep and health - Your Guide to Better Sleep

According to the report of (MNA) – The jujube, known as "Red Pearl", is produced in South Khorasan province. This province, with allocating 98 percent of the cultivated area to the fruit, is considered the first jujube producer in the country and in the world.

Jujube is rich in vitamins, minerals, fatty acids, and other **health-promoting** organic compounds, **jujube** can have broad benefits for sleep, mood, general **health**, and protection against disease. Here are some of the specific ways **jujube** benefits **health**, according to scientific research: As an antioxidant.



What is Jujube? Jujube may sound strange as a fruit name but it is a hoarder of nutrients. It is a very powerful food that packs a healthy punch for the millions of people who know its true value. Although the common names are red date and Korean date, the scientific classification of jujube is *Sisyrinchium jujube*. A jujube is typically a small shrub or tree with small yellowish-green petals and drupe fruits that are about the size of a date and range from



brown to purplish-black. These fruits are native to southern Asia, including southern and central China. However, it has now been introduced to the rest of the world, primarily Europe, and is available in many exotic fruit import stores.

The most amazing thing about the jujube fruit is that it has more than 10,000 years of history, and in that history, over 400 different cultivars are found. In terms of culinary use, jujube fruit is consumed as a fruit, dry candy or in the form of juice. In some countries, the pits are removed and the flesh is pounded with sugar and other fruits into a cake that can dry in the sun.

-The most interesting health benefits of jujube include its ability to treat cancer, improve skin health, aid in weight loss, cleanse the blood, relieve stress, stimulate restful sleep, boost immunity, protect the liver, increase bone mineral density, and detoxify the body.

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Health Benefits of Jujube-

Regardless of how you eat jujubes, the powerful antioxidants and organic compounds found in this impressive fruit will grant you a wide range of positive effects. Now, let's take a more in-depth look at the many health benefits of jujubes.

Regulates Circulation-The jujube fruit is a rich source of both



iron and phosphorous, which are key ingredients in the red blood cells. If you suffer from low iron content in your blood or anemia, you may experience symptoms like muscle weakness, fatigue, indigestion, lightheadedness, and cognitive confusion. By increasing your iron and phosphorous intake with jujube fruit, you can increase blood flow, thereby oxygenating your organ systems more effectively.

10 Best Benefits of Jujube- The most interesting health benefits of jujube include its ability to treat cancer, improve skin health, aid in weight loss, cleanse the blood, relieve stress, stimulate restful sleep, boost immunity, protect the liver, increase bone mineral density, and detoxify the body.

Nutrient	Value
Water [g]	77.86
Energy [kcal]	79
Protein [g]	1.2
Total lipid (fat) [g]	0.2
Carbohydrate, by difference [g]	20.23
Calcium, Ca [mg]	21
Iron, Fe [mg]	0.48
Magnesium, Mg [mg]	10
Phosphorus, P [mg]	23
Potassium, K [mg]	250
Sodium, Na [mg]	3
Zinc, Zn [mg]	0.05
Vitamin C, total ascorbic acid [mg]	69
Thiamin [mg]	0.02
Riboflavin [mg]	0.04
Niacin [mg]	0.9
Vitamin B-6 [mg]	0.08
Vitamin B-12 [µg]	0
Vitamin A, RAE [µg]	2
Vitamin A, IU [IU]	40
Fatty acids, total trans [g]	0
Cholesterol [mg]	0

Sources include : USDA

Improves Bone Strength-By increasing minerals like calcium, phosphorus, and iron (all of which are prevalent in jujubes), you can ensure that your bones remain resilient and strong. As we age, we tend to suffer from osteoporosis and other bone degrading conditions, so adding jujube fruit to your diet can slow or reverse this trend.

Controls Weight-Eating fruits and vegetables is a common suggestion for people attempting to lose weight, and jujube is another food that can easily be added to the list. With a low-calorie count and a high protein and fiber level, jujube can satisfy your nutri-



tional needs and fill you up, which will prevent you from snacking in between meals. This will help you maintain your diet and prevent any additional weight gain.

Boosts Immunity-Jujube is able to benefit the immune system in many different ways, namely due to its high antioxidant content, including vitamin C, vitamin A, and various organic compounds and acids. These antioxidants are able to neutralize free radicals, which are responsible for many chronic diseases and illnesses within the body. Vitamin C also stimulates the production of white blood cells, the first line of defense of our immune system.

Reduces Stress and Anxiety-Jujube has been proven to have certain anxiolytic and soothing effects on the body. Using the jujube oil extract or consuming the fruit itself can have an impact on your hormonal levels and induce a calm, relaxed sensation through your mind and body. For people who regularly suffer from chronic stress or anxiety, snacking on some dried jujubes or seeking a jujube supplement can help ease the mind and protect the body from the side effects of extended exposure to stress hormones.

Treats Cancer-Although the exact mechanisms and specific relationships between jujubes and cancer are still being researched, early results point to a positive correlation between the bioactive compounds in jujube and a reduction in free radical activity and the spread of cancerous

cells. The antioxidants present in jujube make it a very effective and preventative method for cancer as well as other chronic conditions, including heart diseases.

Skin Care-Jujube juice and extract have been used topically to treat various skin irritations and inflammations, including psoriasis, eczema, and acne. You can consume the jujube fruit to get the same effects. It can also help prevent the appearance of wrinkles and scars, as well as keep the skin energized with oxygenated blood.

Aids in Digestion-Jujube fruits are also linked to improving digestive processes within the body. This is mainly attributed to its fiber content, but the saponins and triterpenoids also play a part in this by optimizing the uptake of nutrients and promoting healthy movement of food through the bowels. This can help prevent constipation, cramping, bloating, and excess flatulence, as well as gastrointestinal conditions like colorectal cancer.

Detoxifies the Blood-The saponins and alkaloids found in jujube fruit have been directly linked with purifying the blood and eliminating harmful toxins from the body's systems. This antioxidant effect can help prevent a large number of diseases and also ease the stress on the immune and lymphatic systems.

Word of Caution: Jujubes can be dangerous for those suffering from diabetes, as it contains a number of complex carbohydrates and it can negatively affect blood sugar levels. Jujubes generally show very few side effects, except in those with a natural allergy to the fruit. Before making a major change to your fruit or supplement intake, consult a medical professional to make sure it's a good choice for you.

www.secrethawk.com

Short Economic News

Iran Short Economic News:

After repeated record lows, Rial recovers unexpectedly

TEHRAN, (MNA) – Following government's Saturday measure to grant authority to the Central Bank of Iran (CBI) to interfere in the foreign exchange market in defense of the rial, the Iranian currency started to regain incrementally.

On Tuesday, in the Iranian capital, money exchange shops offered around 140,000 rials for one US dollar, while the rate stood at 190,000 on Saturday. A downward trend in the price of foreign currencies in Iran pushed down the value of dollar in the unofficial market by almost 50 percent in less than 24 hours. Since Monday evening, people have been gathering, even at night, in the market to sell their dollars.

Foreign currency values began to boost in Iran after the US pulled out from the 2015 Iran nuclear deal in May and announced plans for a fresh wave of sanctions against the country.

In the fear of plunge in the value of their assets, shocked by the rampant inflation rate and the unprecedented recession, ordinary people flocked to money exchange markets to exchange their dollars for rial at the time, the move which imbalanced the whole market.

Now, the loop is redirected due to the rush of individual owners of the greenback to the market, this time for exchanging dollar for rial. However, if this will be



a permanent rally and whether the CBI's targeted forex rates remain unclear because the US sanctions targeting Iran's vital oil industry are to appear in early November. The CBI intends to announce the rate of exchange in the foreign exchange market at an appropriate time, Iranian officials say.

Analysts offer various reasons for this week's rally of rial, among which stand six effective factors including:

- * Europe's decision for creating financial relations with Iran un-dependable to US,
- * the plan of China and Russia for making separate financial relations with Iran,
- * the probability of ratification of FATF by Iranian legislative institutions,
- * having CBI appointed as the body in charge of monitoring the forex market via supervising banks and permitted exchange shops and controlling the exchange rate of hard currencies,
- * the wait for Hauge Court's verdict on Iran's demand for the suspension of nuclear-related sanctions imposed by the United

States that will be announced on Wednesday, and

* Government's act of appointing a new economic team.

In fact, Rouhani administration has tried several solutions to shield from US economic sanctions, specifically the depreciation of its rial over the past few months.

A day after the central bank was given more powers to intervene in currency markets, Iran's Judiciary sentenced three people, one of them called 'Sultan of Coins', to death convicted of economic corruption including causing disorder in the country's gold coin and foreign exchange market.

It can be also referred to the CBI's decision for launching a secondary currency market on July 3, 2018, in a bid to renovate its foreign currency system, reign the currency rates, reinforce exports, improve cooperation with foreign currency exchange shops, and to ease a dollar shortage ahead of the new turn of US sanctions. The government also unveiled a package of policies to strengthen the rial. The Ex-head of Tehran's Chamber of Commerce Yahya Al-e Eshaq put the real rate of rial to US dollar at 70,000 on Tuesday calling for the administration to increase its control over domestic forex market, as he expressed the forex rate bubbles were created due to psychological factors and foreign ones.

Old Copper, stone periods identified in western Iran

Tehran, IRNA - The oldest periods so far identified in the retrospective program in the city of Qorveh in Kurdistan Province are the Old Copper and Stone eras.

Fereshteh Sharifi, head of the retrospective program for the archeological survey and identification in the city of Qorveh was quoted by the Public Relations Office of the Research Institute of Cultural Heritage and Tourism (RICHT) as saying that in the current program efforts were made to carefully survey the margin of the Telvar and Shur rivers and in addition also cover the foothills and the plain of Qorveh in order to get acquainted with the settlement condition of different periods.

Apparently the type of the dispersion of the settlement areas is as such that they were mainly centered near the river and the lower parts of the plain, she added. In the present methodological study, the area under study is divided into 9x9 km networks, and



according to the format of the Center for Archeological Research each square has its own code, she noted.

Sharifi added that on the basis of this study, each square would be surveyed separately and has its own code.

She noted that in the early studies, more than half of the area was covered and 140 artifacts were identified, one quarter of which were seen for the first time.

The head of the archeology team said that according to the forecasts most of the sites were related to the historic and Islamic periods, among which the role of the Islamic sites is more highlighted.

What is important is that the set-

tlements have been formed on the margin of the Shur and Telvar rivers and it is hard to find traces of historical monuments in the heights above the river, Sharifi said. "Of course", she noted, "this matter is true in the northern parts of the city and in the southern parts, as was mentioned in the above, with the creation of canals, aqueduct and drainage of the region there is a higher diversity of the settlement species. She said that the oldest period identified so far is the Old Copper and Stone era.

City of Qorveh is located in the southwest of Kurdistan Province and 1900 meters above the water level, indicating the cold weather of the area in the Iranian plateau. The city has a span of 2,430 square kilometers, and the Shur River is the main river of the city and Telvar is one of its main branches. Fertile lands, along with a large number of springs, have increased the importance of settlement there from a long time ago since today.

Iran's Kurdistan Univ., French ICD ink scientific coop. agreement

University of Kurdistan in Iran and French International Business School (ICD) signed a co-operation agreement in the fields of economy, management and marketing.

Under the contract, two undergraduates or Master's degree students from the University of Kurdistan will be sent to the French International Business School for a period of one semester. Also, two university professors from each side will be exchanged for teaching purposes for a period of one week.

This comprehensive program is sponsored by +Erasmus European Program. In addition to travel



expenses, each student will receive a monthly salary of €850 for each semester while a daily fee of €160 will be paid to each university lecturer for one week. Undergraduate students should pass at least 70 credits with the minimum average of 15 in order to receive this educational grant while Master's degree students

should obtain the least average of 16 and should have good command of English.

The applicant students must have the authorized permit of academic years in the University of Kurdistan up to Oct. 2019.

+Erasmus European Program will start from Jan. to Feb. 2019.

Interested and eligible students may register their names through the website of International Relations of the university latest by Oct. 13.

The submitted requests will be evaluated and eventually, shortlisted and qualified students will be invited for interview in English

Exports of aquatic animals at 20% growth in the first half of the year 1379

TEHRAN, (MNA) – Statistics shows that export of aquatic animals experienced a considerable 20% growth in the first half of the current Iranian calendar year (March 21-Sept. 21).

Head of Iranian Fisheries Organization Hassan Salehi made the above remark and said, “more than \$80 million worth of aquatic animals has been exported from the country in the first half of the current year, showing a considerable 20 percent growth in terms of value and weight respectively as compared to the same period of last year.” Speaking on Wednesday on the sidelines of the inaugural of 3rd International Exhibition of ‘Fisheries, Aquatic Animals, Fishing and Related Industries’, Salehi said, “once the



production volume continues with the same growth, it is predicted that total exports volume of aquatic animals will hit \$500 to \$580 before the termination of the current year (to end March 20, 2019).” Presently, a major portion fish farming industry in cage, equipment and machinery, cage frame, feedstock needed by aquatic animals are being produced in the country in cooperation with foreign companies, he

opined. Elsewhere in his remarks, deputy minister of Agriculture added, “so far, more than 500 cages have been installed both in sea and domestic waters.”

Turning to farming tilapia fish species in the country, he said, “with the coordination made in this regard, license for producing and farming tilapia fish species has been issued in four provinces of country including South Khorasan, Semnan, Yazd and Qom in cooperation with Environment and Fisher Sciences Research Center.” In conclusion, he said, “imports of tilapia fish species into country were banned in order to support domestic production and prevention of capital flight from the country.”

World Short Economic News:

By: Hanif Ghaffari

From Obama to Al Gore: Democrats taking stance against Trump

(MNA) reports that Overcoming the current president of the United States has turned into the main goal of the Democrats in the United States. American Democrats who have been isolated in the last two years, and lost the White House, the House of Representatives, the Senate, and many governorates, are now planning to win the Congress elections. On the other hand, the public dissatisfaction raised over the performance of the US President has given hope to the Democrats for winning the midterm elections. The president of the United States, speaking among his proponents, has warned about the Democrats' victory in the US midterm elections. Trump has explicitly stated that if Democrats win the elections, many of his decisions will be destroyed. The US Democrats believe that if they fail in midterm elections,



they will not be able to return to power at least until 2024. Therefore, the Democrats will do their best to succeed in the upcoming elections. As we get closer to the Congress elections in November, we will see an increase in the verbal and political attacks of Democrats against Trump and his companions at the White House. Some analysts believe that if the Republicans fail in the mid-term elections, we will see a broad gap formed between the traditional Republicans and the Trump government. This gap exists at the moment, but the leaders of the

Republican Party and its affiliated media avoid from fully disclosing it. However, it seems that if the Republicans lose the US Congress, it will be difficult for the Republican leaders to continue this game! In this case, Trump will be the main accuser of this defeat. The Democrats know well that the Republican defeat in the midterm elections will intensify the disagreement between the party members, and thus will lead to the possible defeat of Trump in the next presidential elections. In recent days, many of the American Democrats have intensified their verbal and political attacks on President Donald Trump. Former Secretary of State John Kerry implicitly stated that he would not rule out running for president in 2020. Kerry was the Democratic nominee for president in 2004 but ultimately lost the election to former US

President George W. Bush. He had also emphasized on the critical situation of the United States following the presence of Trump at the White House. Also Al Gore, the former vice president and Democratic presidential candidate, publicly called for President Donald Trump to resign. Moreover, former US President Barack Obama challenged the existing policies in the United States during John McCain's funeral, without naming Trump. Delivering his eulogy, Obama said: "So much of our politics, our public life, our public discourse can seem small and mean and petty, trafficking in bombast and insult and phony controversies and manufactured outrage." The fact is that one of the main goals of the American Democratic Party leaders in their recent political attacks on Trump is winning the US mid-term elections and the conquest of the House of Representatives and the Senate. Right now the republicans hold the majority of the Congress, and many members of the party, while opposing Trump's policies, are not willing to confront him and stand up

against the White House. But the Democrats, on the other hand, are trying to provide the ground for their victory in the 2020 presidential elections by explicitly criticizing, and even resisting to some of Trump's decisions. Democrats such as John Kerry, believe that if the Republicans fail in the Congress midterm elections and lose their dominance on the House of Representatives and Senate, it will be difficult for Trump to win the 2020 presidential elections. However, if the democrats fail this time against Republicans, just like the way they did in 2016, and lose seats in the House of Representatives and the Senate, Trump will not have a difficult way to win the next presidential election. Many American think-tanks and analysts believe that the mid-term elections this year (2018) will turn into a rigorous opposition between Trump's supporters and opponents. It should be noted here that Democrat candidates for the presidential election in 2020 are not yet introduced. As John Kerry has announced, this is supposed to be after the Congress

elections. Bernie Sanders, Joe Biden and John Kerry are considered as possible candidates for the next US presidential elections. However, some Democrat leaders believe that they should introduce a new figure for this battle. It is yet not clear that who will be the final nominee of the Democrats, but it seems that many of the party's supporters do not have much confidence in their leaders anymore! In the run-up to the 2016 presidential election, Bernie Sanders became the sacrifice of the secret lobbies of the Democrats' senior figures. Later on, it became clear that Democrat leaders had agreed on Hillary Clinton's presence from the very beginning, and the impartial gesture in the Clinton-Sanders competition was nothing but a lie. This caused many of the American citizens to vote for Trump instead of Sanders. Anyway, this time the Democratic Party has a hard time to persuade the party's supporters, and the Congress elections will, to a great extent, depict the political and social composition in the United States...

By: Javad Heirannia

EU wants to continue economic cooperation with Iran

As (MNA) Stated European Union (EU) leaders sincerely want to continue Europe's economic cooperation with Iran and maintain as many of the JCPOA's benefits for Iran as possible. Matthew Bunn, a specialist in nuclear security at Harvard's John F. Kennedy School of Government, believes that "Trump administration's wrong-headed decision to re-impose US sanctions is likely to have a big impact on many companies' decisions on investment and trade with Iran." "EU leaders sincerely want to continue Europe's economic cooperation with Iran and maintain as many of the JCPOA's benefits



Matthew Bunn

for Iran as possible," Bunn tells the Tehran Times in an exclusive interview. He adds that "given the huge size of the US market and the importance of the US financial system to international trades around the world, most companies will reluctantly choose not to do anything that would expose them to US sanc-

tions - which means not investing in Iran, financing transactions with Iran, or buying Iranian oil." Following is the full text of the interview:

Some argue that the European Union laws does not have an effect to protect Iran against the impact of US sanctions. In other words, the law is a new version of the "Blocking Statute" that the European Union approved in 1996 to protect Cuba against US sanctions. In your opinion, how much this law is effectiveness to protect Iran against US sanctions?

EU leaders sincerely want to continue Europe's economic co-

operation with Iran and maintain as many of the JCPOA's benefits for Iran as possible. They are working to find creative ways to keep this cooperation going despite the US sanctions -- as indicated in their joint statement with Iran some weeks ago. Nevertheless, the Trump administration's wrong-headed decision to re-impose US sanctions is likely to have a big impact on many companies' decisions on investment and trade. In essence, companies are faced with a stark choice: do they want to maintain the option to do business in the US market and make use of the US financial system, or do they want to do business with Iran? Given the huge size of the US market and the importance of the US financial system to international trades around the world, most companies will reluctantly choose not to do anything that would expose them to US sanctions -- which means not investing in Iran, financing transactions with Iran, or buying Iranian oil.

Previously, in 1996, without the Europe support, America put sanction on Cuba, and Europe did not accept these sanctions. Nowadays Is Europe still able

to resist US sanctions against Iran?

Most European companies, and most companies elsewhere, are private companies, not owned by or controlled by the government, and are free to make their own trade and investment decisions. European governments can try to persuade them, and can offer some legal protections and subsidies, but ultimately they will have a hard time counteracting the threat of being frozen out of US markets (and even having assets in the United States seized).

In Europe, economic companies have the right to choose and freedom, and the EU also does not want to restrict this freedom. Does the EU can push the companies to work with Iran? How the EU can force the companies to cooperate with Iran?

There are likely, however, to be many complex efforts by both firms and governments in a variety of countries to get around these sanctions. Firms may be established that have no business with the United States or its financial system, and hence no business or assets the United States can sanction. There may

be efforts at "flag swapping," in which one entity buys something (e.g., oil) from Iran and then re-labels it as coming from somewhere else. China, for example, might buy Iranian oil and then relabel it as Chinese oil for sales elsewhere. Given that both Europe and China are now in disputes with the United States over their own trade-with the United States imposing tariffs on both- it would not be surprising if responses to US sanctions on European or Chinese companies got rolled into their trade disputes, in the form of tariffs on US goods to retaliate against sanctions penalties. The picture will be complex and complicated for some time to come, and it is hard to foresee just how serious the impact on Iran's economy will be. Ultimately, it is my hope that the US government will return to a sensible policy and that the parties to the JCPOA will renew their compliance with that accord and negotiate longer-term cooperative arrangements that serve all of their national interests in facilitating trade while reducing the dangers of nuclear proliferation that other states perceive from Iran's nuclear program.

Merkel begins visit to Israel with Iran, Palestinians on agenda

Tehran-German Chancellor Angela Merkel began a visit to occupied Palestine on Wednesday, with Iran's nuclear ambitions and the Israeli-Palestinian conflict among issues on the agenda in talks with Prime Minister Benjamin Netanyahu. Merkel and ministers accompanying her begin with a visit to the Yad Vashem Holocaust memorial in Quds and will hold other meetings during the day before returning to Germany in the evening, Reuters reported. Germany has remained party to the Iran nuclear deal, which lifted sanctions on Tehran in exchange for curbing



its atomic program, after US President Donald Trump withdrew from it in May. But speaking in Amman, Jordan in June, Merkel said that European countries shared concerns over Iran's ballistic missile program and called for solutions to its "ag-

gressive tendencies" in the Middle East. Netanyahu has repeatedly warned against Iran's nuclear ambitions and has said he would prevent the Islamic Republic entrenching in Syria and arming Lebanese Hezbollah guerrillas and supporting Islamist Hamas in the Gaza Strip. The Palestinians have tried to get Merkel to persuade Israel not to raze a Bedouin encampment in the occupied West Bank. Palestinian Prime Minister Rami Hamdallah met with a German diplomat on Wednesday to discuss the matter.

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Member Companies:

Ehtemam Informatics Technology Co.: CCTV, M.D.: Mohammad Nilforoushan, Address: Postal Code: 1593833587, Flat No. 3, Seventh Floor, Iranian Building, Vali-e-Asr Square, Tehran, Tel: +98 (21) 82350, Fax: +98 (21) 88929200, Email: info@ehtemam.com.

Marta Sabz Dasht Co.: importing pharmaceuticals, cattle and poultry food ingredients, M.D.: Nima Ahmadkhani, Address: Postal Code: 1511739543, Flat No. 16, No. 21, Delafrouz Alley, Sixth Alley, Khaled Eslamboli St., Tehran, Tel: +98 (21) 88553610, Fax: +98 (21) 88553977, Email: info@msd.co.ir .

Nikan Pharmed Mehr Co.: pharmaceuticals, M.D.: Maryam Ghasemi, Address: Postal Code: 1464813115, Flat No. 4, #2, Sorth Sarsabz St., Marzdaran Boulevard, Tehran, Tel: +98 (21) 88230130, Fax: +98 (21) 88230130, Email: info@nikanpharma.com .

Cinagen Co.: producing biological pharmaceuticals, M.D.: Haleh Hamedifar, Address: Postal Code: 1466998741, No. 2, 7th Alley, Simaye Iran St., Shahrak Gharb, Tehran, Tel: +98 (21) 42815, Fax: +98 (21) 88561575, Email: export@cinagen.com.

Venous Plastic Co.: home and kitchen plastic utensils, M.D.: Majid Mohammadi, Address: No. 69, Vali-e-Asr St., Vardavard, Tehran,

Tel: +98 (21) 44983383, Fax: +98 (21) 44980229, Email: majidmo44@yahoo.com.

Sepid Gatch Saveh Co.: Producing machine building plaster and plaster products , M.D.: Abolfazl Eghbalyoon, Address: Postal Code: 1631676757, #22, Sepid St., Aryan Mahmoudi St., Shahid Kaboli St., Seye Khandan Bridge, Resalat Highway, Tehran, Tel: +98 (21) 84066, Fax: +98 (21) 88469651, Email: info@sepidgs.com.

Zarmacaron Co.: Foodstuff, M.D.: Mohsen Amini, Address: Postal Code: 1993834737, Zar Building, No. 138, North Sheikh Bahaie St., Tehran, Tel: +98 (21) 88055257, Fax: +98 (21) 88049907, Email: info@zarmacaron.com.

BouZhan TEb Ara Co.: Pharmaceutical, Health and Beauty Equipment, M.D.: Fatemeh Kasravi Gheshlagh, Address: Postal Code: 1938737649, Fifth Floor, No. 45, Gheytaieh St., Mohammadi Alley, Tehran, Tel: +98 (21) 22231223, Fax: +98 (21) 26457692.

Joje Morgh Amin Mehr Jonob Co.: Import and Export of Poultry, M.D.: Ata Reza Khezri, Address: Postal Code: 1517644643, Flat No.15, No.6, Seventh Alley, Gandy St., Tehran, Tel: +98 (21) 66428840, Fax: +98 (21) 66428870, Email: jojemorzaamin.co@gmail.com.

Individual Member:

Ahmad Sadrmomtaz: Exporting Foodstuff, Address: Sadrmomtaz Trading Co., Ilia Building, Pishvar Alley, Soheil Dabiri St., Saadi St., Rasht, Tel: +98 (314) 2244441, Fax: +98 (314) 2244441.

Alimohammad Khalili: Trading, Address: No.11, Edalatkhah St., West 15 Khordad St., Tehran, Tel: +98 (21) 55621361, Email: khlilitradingco@gmail.com.

Key Economic Indicators in 1396

Population and Labor Force

Population	81.1 million
Urban	60.3 million
Rural ¹	20.8 million
Population Growth	1.4 percent
Population Density	49.2 per sq km
Active Population	26.6 million
Unemployment Rate	12.1 percent
Urban	13.4 percent
Rural	8.2 percent
Male	10.2 percent
Female	19.8 percent
15-29 years old	25.3 percent
15-24 years old	28.4 percent

Source: Statistical Center of Iran (SCI).

¹ Includes non-resident population.

Real Sector

GDP Growth (1390=100)	
Oil	3.7 percent
Non-oil	4.6 percent
Performance of 1396 (current prices; trillion Rls.)	
GDP (at basic price)	14,807
Gross Fixed Capital Formation	3,023
Private Consumption Expenditures	7,294
Public Consumption Expenditures	2,057

Changes in Consumer Price Index (CPI) of Goods and Services (1395=100)

Average of 1396 compared with average of 1395 (inflation rate)	9.6 percent
Esfand 1396 compared with previous month	1.1 percent
Esfand 1396 compared with same month previous year	8.3 percent

External Sector (million US\$)

Current Account Balance	15,816
Trade Balance (goods account)	22,596
Exports (FOB)	98,142
Imports (FOB)	75,546
Total External Debt (year-end)	10,910
Exchange Rate (US\$/IRR)	
Interbank Market (average)	Rls. 34,214

Monetary Sector (growth rate, percent) (Esfand 1396 compared with Esfand 1395)

Liquidity (M2)	22.1
Money (M1)	19.4
Quasi-money	22.5
Non-public Sector Deposits	22.4

Government Fiscal Position (trillion Rls.)

Revenues	1,675.7
Expenses	2,429.4
Disposal of Non-financial Assets	922.9
Acquisition of Non-financial Assets	439.2
Net Lending/Borrowing	270.1

Tehran Stock Exchange

Tehran Stock Exchange Price Index (TEPIX) (year-end)	96,290.0
Value of Shares and Rights Traded	Rls. 539.1 trillion
Volume of Shares and Rights Traded	250.6 billion

Source: CBI