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Сборник адресован молодым ученым, аспирантам, студентам и школьникам, преподавателям вузов и колледжей, учителям и всем, кто интересуется иностранными языками, странами и их культурами.

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**СЕКЦИЯ
«АКТУАЛЬНЫЕ ПРОБЛЕМЫ ЯЗЫКОЗНАНИЯ»**

О.О. Бойко

**ОСОБЕННОСТИ ФОРМИРОВАНИЯ ЯЗЫКА ИСТОРИЧЕСКОЙ
НАУКИ (НА МАТЕРИАЛЕ НЕМЕЦКОГО ЯЗЫКА)**

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Язык играет определяющую роль в создании не только языковой картины мира, но и в модели научно-профессионального универсума, познающей посредством изучения профессионально ориентированного дискурса [5, с. 69].

Взаимосвязь языка, сознания и научно-профессиональной деятельности человека находится в центре научных исследований, так как изучение такого рода отношений делает более понятными процессы, которые происходят в интеллектуальном пространстве специалистов разных отраслей при формировании их профессионально-ориентированного языкового сознания.

Научные знания, дифференцированные, структурированные и систематизированные по разным областям, нашли свое практическое применение в разных профессиях, получивших названия соответственно сферам науки, которые они представляют. В научно-профессиональном общении используется кодифицированный язык, позволяющий ученым, изучающим явления как одной конкретной научной области, так и разных областей науки, понимать друг друга при осуществлении устной и письменной коммуникации [5, с. 71].

Согласно Ю.Н. Караулову, в формировании личности определяющую роль играет язык [3, с. 132], а профессионально ориентированный язык занимает ведущее место при становлении научно-профессиональной личности. Занимая центральное место в структуре языковой профессиональной личности, лингво-когнитивный уровень, представленный профессиональным лексиконом, способствует формированию профессионально-ориентированного языкового сознания, и, следовательно, определенной модели мира [6, с. 20].

В свете особого внимания к истории изучение научно-профессионального сознания историка посредством анализа его языка очень актуально. Профессионально-ориентированный язык исторической

науки оказывает непосредственное влияние на становление и развитие научно-профессионального языкового сознания историка, который в своей научно-профессиональной речевой деятельности пользуется особыми речевыми оборотами и терминами.

Все возрастающий интерес к истории в последнее время объясняется несколькими факторами, а именно стремлением каждого народа установить свое место в историческом континууме, раскрыть культурные особенности, определить свою роль в развитии общества в прошлом и спрогнозировать перспективы на основе имеющегося исторического опыта – основы объективности исторического познания [2, с. 76], а также в связи с агрессивными попытками переписать историю с искажением реальных фактов.

Научный исторический дискурс способствует формированию научно-профессиональной языковой личности историка. Особенность истории как науки заключается в невозможности эмпирически изучить события прошлого. Они постигаются большей частью посредством изучения многочисленных первоисточников и интерпретируются в зависимости от идеологических воззрений историков, представляющих собой сформированную научно-профессиональную языковую личность.

Употребляющаяся для выражения наиболее общих понятий научной категоризации, обеспечивающая языковое выражение более или менее постоянных элементов общего процесса научного познания, способствующая логическому и последовательному изложению материала общенаучная терминология составляет научно-профессиональную основу научного дискурса [7, с. 56].

Изучение картины мира историка происходит на основе анализа его языка, лексический состав которого обусловленный изучаемой эпохой, изменяется в соответствии с изучаемой исторической реальностью в разный временной период. Язык историка отражает преобразования, происходившие в жизни человеческого общества на протяжении тысячелетий. Лексика языка историка неоднородна по своему составу и состоит из трех слоев: общеупотребительной терминологии, специальной терминологии и общенаучной терминологии [7, с. 56].

Общенаучная терминология, отражающая научные понятия, соотносящиеся с объектами, явлениями и процессами в различных областях знания, способствует формированию научно-профессионального языкового сознания, составляет метаязык ученых. Метаязык – это язык научного исследования, средствами которого описываются и исследуются свойства другого языка (обычно называемого предметным) то есть это – язык описания, язык «второго порядка», при помощи которого описываются языки-объекты. Для того чтобы отличить метаязык от языка-объекта, он строится как терминологическая система. Метаязык

исторической науки – это методологически искусственно выделяемая структура языка, с помощью которого становится возможным говорить о другом языке, то есть языке исторической теории [7, с. 54].

В научном историческом дискурсе функционирует значительное количество синтагматических последовательностей с устойчивым лексическим наполнением, используемых для выражения наиболее общих понятий научной категоризации, «семантическим ядром» которых являются общенаучные термины.

Общенаучные термины можно отнести к универсалиям научного дискурса, придающим упорядоченность и логичность научному изложению [1, с. 427], например *das Artefakt* 'артефакт' (процесс или образование, не свойственные изучаемому объекту в норме и возникающие обычно в ходе его исследования), *das Argument* 'аргумент' (утверждение или совокупность взаимосвязанных суждений, приводимое в подтверждение истинности какого-либо другого суждения или системы суждений и т. п.), *die Aktualität* 'актуальность' (от позднелат. *actualis*, фактически существующий, настоящий, современный; важный для настоящего времени; насущный вопрос), *die Hypothese* 'гипотеза' (предположительное суждение о закономерной связи явлений; форма развития науки), *die Binsenweisheit* 'ненеположенная истина' (соответствие знания действительности; объективное содержание эмпирического опыта и теоретического познания) [9, с. 203], *das Kriterium* 'критерий' (гр. *criterion*, мерило для оценки чего-либо, для суждения о чем-либо) и др. [11, с. 169-264].

Основу специально-научных синтагматических последовательностей научного исторического дискурса составляет специальная терминология исторической науки, например археологии, как дисциплины, изучающей прошлое человечества по вещественным источникам: *die Ausgrabungsstelle* 'место раскопок' (площадь раскопа и прилегающий участок с местами для первичной разборки находок, хранения оборудования и т.д.), *kurzzeitiges Lager* 'временная стоянка' (временный лагерь, кратковременная стоянка), *die Humifikation, die Humifizierung* 'гумификация' (сложный биохимический процесс превращения отмерших растительных остатков и др. биогенных продуктов в гумусовые вещества), *das Urotschistsche* 'урочище' (одна из низших единиц физико-географического районирования; морфологическая часть ландшафта), *die Paläoklimakarte* 'палеоклиматическая карта' (картографическое изображение результатов палеоклиматических реконструкций для отдельных эпох (хронологических срезов) [10, с. 12, 25, 27, 195].

Широко используются также различные стилистические фигуры, эрзац-термины, диалектизмы, профессионализмы и многое другое, например, *die Barbaren* 'варвары' (у древних германцев и римлян название

чужеземцев), *die Germanen* 'германцы' (родственные племена, которые проживали в Южной Скандинавии и Северной Европе между Рейном и Вислой), *Große Völkerwanderung* 'великое переселение народов' (движение германцев, славян, гуннов и др. на территории бывшей Римской империи в IV-VII вв.), *die Markgrafschaft* 'маркграфство' (пограничное княжество в Германии), *der Pfalzgraf* 'пфальцграф' (управляющий королевских замков и имений), *die Westgoten* 'вестготы' (западные готы), *der Kurfürst* 'курфюрст' (князь, который избирает монарха), *das Rathaus* 'ратуша' (здание, в котором размещалось городское правительство), *der Bürger* 'бюргер' (полноправный горожанин), *der Landesknecht* 'ландскнехт' (немецкий наемный пехотинец), *das Rittertum* 'рыцарство' (второе после духовенства господствующее общественное сословие в средневековой Европе), *der Landtag* 'ландтаг' (собрания земских чинов внутри княжеств), *die Gülte* 'оброк' (натуральная или денежная повинность крестьян феодалу), *die dynastische Ehe* 'династический брак' (брак между представителями правящих династий разных государств), *der Landtag* 'ландтаг' (собрания земских чинов внутри княжеств), *der Absolutismus* 'абсолютизм' (форма феодального государства, при которой монарху принадлежит неограниченная верховная власть), *deklassierter Krieger* 'деклассированный' воин и т. д. [8, с. 15, 90, 103].

Все социально-политические изменения, смена жизненного уклада зафиксированы в специальной исторической терминологии, которая является показателем «культуры народа, и изменение значений, утеря старых слов, создание или заимствование новых – все это зависит от истории самой культуры» [6, с. 243].

Таким образом, исторические термины отражают основные категории и понятия исторической науки и относятся к специально ориентированному лексикону, способствующему формированию научно-профессионального языкового сознания. Они способствуют также созданию единого континуума – исторического прошлого человечества. Каждая эпоха необратима во времени и характеризуется свойственными только ей обстоятельствами, выраженными в исторических терминах. Историки используют исторические термины для того, чтобы соединить «пеструю во времени и пространстве картину истории в единое целое» [3, с.30]. Язык истории играет определяющую роль в формировании модели мира исторического прошлого в ментальном пространстве историка.

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Ю.А. Ващилко
**СРЕДСТВА ВЫРАЗИТЕЛЬНОСТИ В АНГЛОЯЗЫЧНЫХ
РЕКЛАМНЫХ СЛОГАНАХ**

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Реклама – распространение информации о товарах и услугах с целью ускорения их продажи, установления контактов между покупателем и товаром, пропаганда товаров и информация о способах их покупки; средство, содействующее появлению у покупателя заинтересованности и желания купить данный товар. Для рекламирования используются рекламные тексты. Непосредственно рекламный текст выступил объектом исследования в работах В.В. Бабайцевой, Н.С. Валгиной, А.Д. Васильева, В.В. Виноградова, В.В. Иванова, П.А. Леканта, А.М. Пешковского, Г.Я. Солганика, Н.М. Шанского и др.

П.А. Лекант определяет рекламный текст как разновидность текста массовой коммуникации, который имеет свою прагматическую установку – оказание воздействия на потребителя в направлении изменения или укрепления его положительного отношения к рекламируемому товару / услуге. Воздействие в рекламном тексте во многом достигается за счет использования средств убеждения (аргументативного способа подачи информации), а также средств речевой образности [3].

Рекламному тексту присущи такие черты, как логичность, ясность, доходчивость (основаны на аргументации); образность, субъективность (выражают авторское отношение к предлагаемому товару, позволяют, воздействуя на разум и эмоции потребителя, убедить его в необходимости приобретения рекламируемого товара).

Эффективность рекламного текста зависит от удачного соединения всех составляющих его компонентов: изображение, звук, образ, словесная ткань. Вместе с тем исследователи отмечают первостепенную важность именно вербального компонента рекламы — словесного текста.

Большую роль в читаемости рекламного текста играет использование абстрактных, конкретных, родных и иностранных слов, а также частота их применения и длина. В сравнительном исследовании 64 английских и французских слоганов было выявлено, что их средняя длина равняется 6,4 слова. Особенно популярны слоганы, состоящие из 5 слов; большая же часть слоганов состоит из 5–6, максимум 7 слов [1].

Рекламный текст включает следующие структурно-семантические компоненты: заголовок (зачин); основной рекламный текст (информационный блок); эхо-фраза; слоган [3].

Рекламный слоган – лаконичная, легко запоминающаяся фраза, выражающая суть рекламного сообщения [2, с. 66]. Он суммирует

преимущества продукта для создания краткого сообщения, которое легко бы запоминалось [4].

Поскольку основной функцией рекламного текста является привлечение внимания целевой аудитории, то для придания рекламному сообщению выразительного вида, используются различные средства художественной выразительности: стилистические, лексические, фонетические, грамматические.

На фонетическом уровне создатели рекламных текстов чаще всего применяют различные повторы, как звуковые, так и лексические:

1) *аллитерация* – повторение одинаковых или однородных согласных: “*Sense and simplicity*” (*Play Station*).

2) *анафора* – стилистический прием, связанный с повторением сходных звуков, слова или группы слов в начале каждого параллельного ряда: “*May be she’s born with it. May be it’s Maybelline*” (*Maybelline*).

3) *эпифора* – данный стилистический прием образуется на базе повторения одинаковых букв, одинаковых частей слова, одинаковых слов или словосочетаний в конце предложения: “*Buy it. Sell it. Love it*” (*EBay*).

4) *фонемный повтор* – в основе данного приема лежит повтор фонем одного из слов рекламного слогана: “*It gives you wiiiings!!*” (*Red Bull*). Фонемный повтор придает слогану эмоциональную окраску, делает его ярким.

5) *звукоподражание* – сущность этого приема заключается в том, что звуки подбираются таким образом, что их комбинация воспроизводит какой-либо звук, ассоциируемый нами с производителем (источником) этого звука: “*Schhhh! You know who?*” (*Schweppes*).

Слоганы, в которых использованы фонетические средства выразительности, обычно рассчитаны на невольное запоминание, а следовательно, хорошо узнаваемы целевой аудиторией.

Наиболее значимым признаком рекламного текста является наличие *глагольных сочетаний*. В англоязычной рекламе глагольные сочетания типа “*Buy this*”, “*Discover that*”, “*Try some today*”, “*Don’t forget*”, “*Treat yourself*” весьма распространены. Например: “*Let’s make things better*” (*Philips*).

Исследование англоязычных рекламных текстов показывает, что к наиболее часто употребляемым в императиве глаголам можно отнести следующие: *buy, try, ask, get, see, call, feel, taste, do, discover, start, enjoy и др.* Императивная форма глагола является мощным средством рекламного текста, поскольку она помогает побудить потенциального покупателя купить рекламируемый товар. Например: “*Buy the car. Own the road*” (*Pontiac Grand Am*).

Переводчики англоязычной рекламы обращают внимание на особый характер употребления в рекламных текстах *личных и притяжательных местоимений*. Убедительная тональность рекламного обращения часто

строится на последовательном применении следующей коммуникативной модели: “*We, our*” – для обозначения рекламодателя, “*You, your*” – для обращения к потенциальному покупателю и “*They, their*” для ссылки на возможных конкурентов. Например: “*Obeey your thirst*” (*Sprite*).

Важную роль в синтагматическом рисунке англоязычных рекламных текстов играют *атрибутивные словосочетания*. Поскольку одним из важнейших компонентов рекламного текста является описание рекламируемого товара или услуги, атрибутивные сочетания, в состав которых входят наречия и прилагательные, несут большую функциональную нагрузку. Например: “*Life's Good*” (*Sony*). Именно прилагательные и наречия помогают создать ту неповторимую тональность рекламного обращения, которая позволяет передать качества и достоинства рекламируемого предмета. *Прилагательные и наречия* используются для описания различных свойств рекламируемого продукта – формы, размера, качества стоимости, ощущений, которые данный продукт вызывает. К наиболее употребительным в англоязычной рекламе прилагательным и наречиям относятся: ‘*natural*’, ‘*sensual*’, ‘*innocent*’, ‘*passionate*’, ‘*romantic*’, ‘*mysterious*’, ‘*good*’, ‘*better*’, ‘*best*’, ‘*free*’, ‘*fresh*’, ‘*delicious*’, ‘*full*’, ‘*sure*’, ‘*clean*’, ‘*wonderful*’, ‘*special*’, ‘*fine*’, ‘*big*’, ‘*great*’, ‘*real*’, ‘*easy*’, ‘*bright*’, ‘*extra*’, ‘*rich*’. Например: “*Good to the last drop*” (*Maxwell House*).

К основным грамматическим средствам выразительности рекламного текста можно отнести синтаксис. В рекламном тексте встречаются предложения с нейтральным порядком слов. Однако широко используются:

- *эмоциональная инверсия*: “*Impossible is nothing*”. (*Adidas*)
- *риторические вопросы*: “*Is it live, or is it Memorex?*” (*Memorex*).
- *восклицания*: “*Give me a break! Give me a break! Break me off a piece of that Kit Kat bar!*” (*Kit Kat*).
- *незаконченные предложения*: “*Skittles...Taste the rainbow*” (*Skittles*).

Одним из синтаксических средств выступает *дислокация* (перемещение в необычную структурную позицию какого-либо члена предложения). Для рекламных слоганов характерно перемещение и в пределах всей конструкции, которое оформляется как отдельное предложение. Например: “*Like. No. Other*” (*Sharp*).

Редукция – усечение предложения за счет эллипсиса грамматических членов предложения. Например: “*Hungry? Grab a Snickers!*” (*Snickers*).

Необходимо отметить, что для рекламных слоганов характерно использование *имен прилагательных в начальной и превосходной формах*, а также *глаголов в повелительном наклонении*. Это придает экспрессивность и эмоциональную окраску рекламному слогану. Например: “*Just do it*” (*Nike*).

Универсальной чертой рекламных слоганов является их лаконичность, что проявляется в большем количестве текстов, содержащих только одно предложение, а также преобладание простых предложений над сложными.

Идиомы – это новое, неожиданное значение группы слов, каждое из которых обладает своим собственным значением. Например: “*Come alive with Pepsi*” (*Pepsi*).

Достаточно креативным способом оформления рекламного текста можно считать игру слов. *Игра слов (каламбур)* – это такое сочетание слов между собой, когда раскрывается сразу несколько значений одного слова; при этом значения как бы играют друг с другом. Например: “*When it pours, it reigns*” (*Michelin*).

К стилистическим средствам выразительности рекламного текста также можно отнести *антитезу*. Ее характеризуют как связь и сопоставление противоположных идей, для достижения большей ясности образов или для более сильного выражения чувств и идей. В случае использования данного стилистического приема достигается эффект контраста и рекламный текст приобретает более оригинальное звучание, а значение определяется более точно из-за наложения на это объяснение его противоположного значения. Например: “*The world’s local bank*” (*HSBC*).

Метафора – это прием, при котором характеристики одного предмета переносятся на другой на основе некоторого сходства. Рекламная метафора нацелена на создание оригинального рекламного образа и привнесение какого-либо оценочного эффекта в рекламный текст. Рекламная метафора лаконична, ее цель – образно, выразительно, доступно назвать предметы и явления. Например: “*Between love and madness lives obsession*” (*Calvin Klein*).

Отдельного упоминания заслуживают *сравнения*, которые представлены в рекламном тексте достаточно широко. Например: “*No battery is stronger longer*” (*Duracell*).

Таким образом, реклама – это распространение информации о товарах и услугах с целью ускорения их продажи, установления контактов между покупателем и товаром, пропаганда товаров и информация о способах их покупки; средство, содействующее появлению у покупателя заинтересованности и желания купить данный товар. Рекламный слоган выражает суть рекламного сообщения. Влияние рекламного текста на отношение потребителей к товару или услуге во многом зависит от используемых средств выразительности. Для придания рекламному сообщению выразительного вида, для всесторонней характеристики товара и одновременно для нагнетания эмоционального напряжения используются фонетические, лексические, грамматические, стилистические средства художественной выразительности.

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ПОЛИТКОРРЕКТНОСТЬ КАК ЛИНГВИСТИЧЕСКИЙ ФЕНОМЕН В АНГЛОЯЗЫЧНОМ ФОЛЬКЛОРНОМ ДИСКУРСЕ

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В настоящее время в России, а также в Европе уделяется большое внимание лингвистическим изменениям, произошедшим под влиянием социальных, культурных и других факторов окружающей действительности. Язык рассматривается не как неизменное целое, но как живой организм, чутко реагирующий на происходящее в обществе. Из всех научных дисциплин когнитивная лингвистика рассматривает язык с точки зрения его связи с восприятием человеком окружающей его действительности, его постижением и пониманием мира. Политическая корректность является масштабным явлением современности [7, с.21].

Политическая корректность (Political Correctness) – культурно-поведенческая и языковая тенденция, нацеленная на замену устоявшихся терминов, могущих задеть чувства и достоинство того или иного индивида эмоционально нейтральными и/или положительными эвфемизмами.

Произошел термин «политическая корректность» от английского словосочетания «politically correct», что означает «соответствующий установленным правилам». На английском языке слово «polite» означает «вежливый», на русском же оно приобретает оттенок политичности и принадлежности к политике. Повальное увлечение различными американизированными словоформами привело к тому, что политкорректность прижилась в русском языке и без перевода, как в принципе и остальные американизмы, и английские слова (менеджмент, офис, рекрутинг, девелопмент и т. д.) [6, с.15].

В конце XX века РС (Political Correctness) становится популярной и, по справедливому замечанию Линн Виссон, «назойливой», а иногда даже «абсурдной». Людям, говорящим на английском языке, теперь приходится следить за своей речью, чтобы не оскорбить окружающих. «Превращение отрицательных качеств в положительные и, следовательно, оправдание людей, сомнительных и с моральной, и с политической точки зрения, стало результатом доведения до абсурда любимой американской идеи о том, что все люди равны и поэтому имеют равные права.

Предметом нашего исследования является англоязычный фольклорный дискурс. Определяя термин «сказка» необходимо упомянуть, что данные произведения, как правило, выполняются в прозаической форме, нередко насыщены волшебством, и, чаще всего, имеют счастливый финал. Определение феномена сказки появилось примерно в XVII – именно тогда термин впервые встречается в письменных источниках [5, с.78].

Политическая корректность вызывает весьма неоднозначную реакцию общественности. Все чаще это языковое явление становится предметом насмешек. Ярчайшим примером политкорректной абсурдности является сборник Джеймса Финна Гарднера «Politically Correct Bedtime Stories: Modern Tales for Our Time and Life». Автор ставит себе целью переписать всем известные сказки политкорректным языком. «Три поросенка», «Золушка», «Красная Шапочка», «Белоснежка», «Джек и бобовое зерно» – это далеко не полный перечень «исправленных» историй. Здесь волк – это плотоядный империалист-притеснитель (carnivorous imperialistic oppressor), сестры Золушки обладают столь нестандартной внешностью, что способны остановить часы (differently visaged enough to stop a clock), а Белоснежка страдает от того, что является удачной мишенью для дискриминации по цвету кожи (a fortunate target of colorist thinking). [1, с.212]

Результаты проведенного нами исследования свидетельствуют о том, что влияние политкорректности распространяется на многие сферы жизни, в том числе и на фольклор. Для анализа степени этого влияния нами была выбрана классификация политической корректности Г.В. Лобановой [2]. Автор выделяет следующие **виды** политической корректности:

1) расовая (Negro=AfricanAmerican) – научное, этнографическое обозначение замещается политическим;

2) этническая – использование самоназваний индейских племен, хотя все индейцы продолжают называть себя «индейцами», осознавая себя одним народом;

3) культурная – направление семантического развития определяется переходом от указания на культурную принадлежность к указанию на географическое происхождение (Oriental=Asian American);

4) гражданская (foreigners=newcomers; foreign languages=modern languages; illegal aliens=undocumented residents);

5) социальная – стирание в речевой практике различий в имущественном и гражданском положении (poor=needy=deprived=underprivileged>disadvantaged; slums=substandard housing);

6) профессиональная – нивелирование гендерных различий в обозначении профессиональной деятельности;

7) этическая – нивелирование этической оценки (drunkard=alcoholic=alcohol addicted);

8) нравственная, особую часть которой составляют военные эвфемистические слова и выражения (collateral damage);

9) физическая – замена слов, указывающих на возраст, физические способности и внешность;

10) умственная – стирание в языке различий между людьми по их умственным способностям, одаренности и т.п (fool, dumb=differently abled; retarded children=children with learning difficulties);

11) гендерная;

12) сексуальная(roof, fag=queer=gay);

13) экологическая – стремление отразить во внутренней форме новых политкорректных имен жестокость человека по отношению к животным и растениям. [7]

В рамках дипломного исследования было проведено тестирование студентов языковой специальности II, III, IV курсов Гуманитарного факультета Ульяновского государственного технического университета. Классификация Г.В. Лобановой использовалась для анализа тестирования. В тесте представлены четыре вида заданий. Первое задание состоит в том, чтобы выявить политкорректные фразы либо лексемы в отрывке из детской сказки «Red Riding Hood» из сборника политически корректных сказок Джеймса Фина Гарнера. Данный отрывок включает в себя следующие виды политической корректности (по степени значимости): профессиональная; экологическая; гендерная; умственная; физическая; сексуальная.

Второе задание заключается в том, чтобы правильно сопоставить политически корректные эквиваленты и их перевод.

Третье задание заключается в самостоятельной переводческой работе. Нами был выбран политкорректный термин «People in color», студенты должны были подобрать политически корректный русскоязычный эквивалент данного термина или придумать свой термин.

Четвертое задание заключалось в определение «неполиткорректного цвета» (на основе отрывка из сказки). Проанализировав ответы студентов можно прийти к выводу, что на сегодняшний день цветовая палитра

подвергается изменениям и все больше людей не называют в публичных местах те или цвета.

После проведения тестирования нами были сделаны выводы о том, что политкорректность влияет на мировоззрение изучающих английский язык и англоязычную культуру. Особое внимание во время тестирования уделялось таким видам политической корректности, как *гендарная, физическая и сексуальная*.

Ниже приведены ярчайшие примеры этих видов политкорректности:

1. Гендарная: woman's work.
2. Физическая: mature adult, full physical and mental health.
3. Сексуальная: budding sexuality, Freudian imagery.

Всем нам хорошо известно, что в англоязычных странах за неполикорректные высказывания можно лишиться работы, быть исключенным из учебного заведения. Неполиткорректные высказывания осуждаются.

Примечателен тот факт, что во время выполнения второго задания тестирования большее количество студентов правильно сопоставили политкорректную лексику и перевод, что еще раз доказывает влияние новых тенденций называть привычные нам вещи или действия другими словами. Трудность вызвали три политкорректных выражения (взяты из другого направления фольклорного дискурса – городских легенд): 1.genetically oppressive (люди с белой кожей); 2.botanical companions (домашние растения); 3.negative care patient outcome (умершие в больнице).

Проанализировав все варианты ответов студентов в третьем задании, можно сделать вывод, что большая часть учащихся правильно дает свой вариант перевода данного термина. Основная ошибка при переводе – неверное толкование «in color». Многие предположили, что это либо афро-американцы, либо жители Африки. Правильные ответы: люди с разным цветом кожи; люди из разных стран; люди других национальностей.

Основываясь на полученных данных в итоговом задании, можно отметить, что более 90% студентов считают такие цвета, как черный, голубой, белый неполикорректными. Интересно отметить, что никто не выбрал телесный цвет. Лексема, которая ни одну сотню лет безнаказанно использовалась во всех европейских языках, а также в русском и даже в политкорректном американском, означает цвет кожи белого человека. Возможно, в языке африканских племен прилагательное «телесный» означает «черный». Мы полагаем, что в ближайшем будущем прилагательное «телесный», а также люди, его употребляющие без дополнительных уточнений типа «европоиднотелесный» или «афроамериканотелесный», будут подвергнуты критике.

Результаты анализа представлены в диаграмме, показывающей процентное соотношение политкорректности в зависимости от возраста

опрашиваемых. Весьма предсказуемо самыми «политкорректными» являются студенты IV курса специальности «Прикладная лингвистика» с 40% правильных ответов. На втором месте находится III курс (32%). Ну и на третьем месте – II курс с 28% политкорректных ответов.

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ЛИНГВОСТРАНОВЕДЕНИЕ КАК ОДИН ИЗ АСПЕКТОВ ИЗУЧЕНИЯ ИНОСТРАННЫХ ЯЗЫКОВ

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Одним из главных аспектов в изучении иностранного языка является изучение иноязычной культуры. Российский лингвист, специалист в области методики иноязычного образования Е.И. Пассов пишет, что

процесс иноязычного образования является отдельным от других видов образования и выделяет в нем четыре аспекта:

1) познание, которое нацелено на овладение культуроведческим содержанием иноязычной культуры (культура страны, различные факты о культуре страны, сам язык как часть культуры);

2) развитие, которое способствует овладению иноязычной культурой с точки зрения психологического содержания; сюда относятся различные способности и психические функции;

3) воспитание, нацеленное на знание педагогическим содержанием иноязычной культуры (нравственный, моральный, этический аспекты);

4) учение, которое нацелено на овладение социальным содержанием иноязычной культуры, где речевые способности усваиваются через средства общения в обществе [3].

Исходя из этого, Е.И. Пассов считает, что «иноязычная культура есть та часть общей культуры человечества, которой учащийся может овладеть в процессе коммуникативного иноязычного образования в познавательном (культуроведческом), развивающем (психологическом), воспитательном (педагогическом) и учебном (социальном) аспектах» [3].

В изучение культуры входит одна из самых важных комплексных учебных дисциплин, которая включает в себя различные сведения о стране изучаемого языка – страноведение.

В отличие от фундаментальных наук, на которых оно базируется, страноведение включает в себя разнообразные сведения фрагментарного характера и определяется как «дисциплина в системе географических наук, занимаются комплексным изучением материков стран, крупных районов». [1, с. 278].

Лингвострановедение – это не только сведения о стране изучаемого языка, но и обучение языку, объектом которого являются фоновые знания носителей языка. Исходя из этого, важно сделать вывод, что главное отличие страноведения от лингвострановедения, что страноведение является обществоведческой дисциплиной, а лингвострановедение – филологической.

При рассмотрении филологического подхода филологи выделяют две основные задачи:

1. Выявление информации культуры изучаемой страны из языковых единиц.

2. Попытаться создать языковую единицу на фоне образа, который будет соответствовать тому, что присутствует в сознании носителя языка и культуры. Образ национально-кодифицированных ассоциаций, не беря во внимание индивидуальные.

При таком подходе к работе над семантикой, над национально-культурным компонентом значения на первый план изучения выдвигается

не культура, а язык, и лингвострановедческая компетенция призвана обеспечить коммуникативную компетенцию, что предполагает оперирование аналогичными образами в сознании говорящего и слушающего так, как это происходит при общении между собой носителей одного и того же языка и одной и той же культуры [2].

Главной целью лингвострановедения считают преодоление языкового барьера через дословное понимание речи собеседника и неформальных текстов, рассчитанных на носителей языка. Поэтому данная цель является главной, так как решает целый ряд проблем, и выступает в качестве лингвистической основы лингводидактики и перевода. Это помогает полностью понять смысл текста, что при переводе снимает языковой барьер.

Сейчас при возрастании значимости межнационального общения, все чаще в изучении иностранных языков делают акцент на усиление страноведческой ориентации. Это способствует не только к механическому усвоению информации, не только к слепому адаптированию к инокультурным поведенческим нормам, но и к обогащению социального опыта в новой культурно-ценностной плоскости, т. е. к осмысленному пониманию социальных ценностей носителя изучаемого языка и к познанию особенностей его национальной психологии.

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BORROWINGS IN THE ENGLISH LANGUAGE FROM NON-EUROPEAN LANGUAGES

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It is considered quite normal for languages to borrow words from other languages. When a language takes words from other languages, these “new

arrivals” are usually called borrowings or loan words. Considering its short history, it is surprising that English has absorbed a great number of useful words and expressions of almost every language from all over the world. The English borrowings are not only from French, Latin, Greek and Scandinavian, but also from Arabic, Indian, Chinese, Japanese and other languages. These borrowings appeared in English as the result of many years of cultural contacts with the Eastern countries. This article is devoted to the loan words, which came to English from non-European languages, such as Arabic, Indian and Chinese.

One of the important sources of English words is Arabic and many of Arabic loan words have become an integral part of the English language. Through history, the Arabic language has contributed hundreds of words to the English language by many different routes. First of all, it is necessary to mention the historical background of these borrowings. When the Arabs reached Spain and established the Andalus kingdom there, communication between the Arabs and the Europeans began. With time, the Andalus kingdom became the center of various sciences. So, a new contact began between this state and the other parts of Europe. English was one of the languages used by the people of Europe and it began to deal with Arabic language.

During the Middle and the Renaissance Ages, English speakers came into contact with the prestigious intellectual centres of the Arab world. This contact led to a flow of borrowings from Arabic into English in many fields, such as chemistry, medicine, philosophy, mathematics, astronomy, optics, physics, botany, literature, religion (chiefly Islam), music, warfare, shipping, trade, architecture, geography, government and sovereignty. Arabic learning was widespread in medieval England from the 11th to the 13th century. Abelard of Bath, then one of the greatest scientists in Europe, translated the astronomical tables of al-Khwarizmi from Arabic into Latin in the early 1100’s. Two common mathematical terms entered the language in this way: *algebra* and *algorithm*. The word *alchemy*, which entered English in the 1300’s, comes almost unchanged from the Arabic ‘*al-kimya*’ [4].

A lot of names of stars came from Arabic: *Altair*, *Aldebaran*, *Betelgeuse*, *Vega*, *Rigel* and *Algol*. Beyond star names, many astronomical terms, among them *zenith*, *nadir* and *azimuth*, also derive from Arabic.

By the time of Elizabeth I (1533–1603), English merchant seamen were discovering the world beyond the bounds of Europe and bringing back rich and exotic objects, materials and customs from the Middle East and beyond. Significantly, many of the Arabic words that travellers brought back with them at this time suggest a gracious, even luxurious style of living. *Sugar*, *syrup*, *julep*, *sherbet* and *marzipan* are all Arabic in origin. Coffee comes from the Arabic ‘*gahwah*’, which originated in Yemen, and *mocha* from the Yemeni port city. Added to this are the fragrant spices *caraway*, *saffron*, and *cumin*, all of which have Arabic names.

The nineteenth century saw the beginning of European domination of Arabic-speaking lands. Thus, the direction of borrowing has reversed. Yet, English language borrowed a few Arabic words, such as *Bedouin*, *gazelle*, *giraffe*, *hashish*, *minaret*, *mosque*, *sultan*, *vizier*, *bazaar*, *caravan*, etc. Food words that have more recently come into English usage are the following Arabic words: *falafel* / *falafal*, *fattoush*, *shawarma*, *tahini* and *tabbouleh*. It seems that the 1950's was when either Arab cuisine was introduced to English speaking people or that it started to become a trend and gained popularity at the time.

Other interesting Arabic words in recent years have to deal with war, terrorism and religion. Some of these are the following: *al-qaeda* / *al-qaida* / *al-qa'ida*, *intifada* (the uprising) and *niqab* (head covering).

In the progression of adoption and assimilation, some changes have occurred in the pronunciation of loan words due to linguistic and phonetic limitations. In some cases, this change in pronunciation is so drastic that it has become very difficult to recognize the original words. The reason is 'double adoption', because these words had already been assimilated into some other European language before they came into the English language. It means that by the time they had passed into English they had been phonetically or sometimes syntactically assimilated not once but twice. As a result, the English word often has a little resemblance to its Arabic original [1].

But some Arabic words have shown little change in pronunciation, so they are easily recognizable. They are used in English almost in the same sense. For example, 'alchemy' (*al-kimia*), 'alembic' (*al-ambiq*), 'alkali' (*al-qali*) 'amber' (*ambar*), 'algebra' (*al-jabr*, the full name *al-jabr-w-al-muqabila*), 'Aldebaran', or the first-magnitude red star of the Hyades (*ad-dubran*), 'kohl' (*kohl*), 'alcohol' (*al-kohl*), 'cipher' (*sifer*), 'orange' (*naranj*), 'sherbet' (*sharbat*), 'sofa' (*suffah*) and *tariff* (*taareef*).

Many Arabic words appeared in English in a thinly veiled form and can still be recognized with a little effort. For example, 'saffron' (*zaafraan*), 'spinach' (*asfaanaakh*) and *ghoul*, or a demon that preys on the dead, (*ghol*), all sound only slightly different. Similarly, such Arabic words as 'syrup' (*sharaab*), 'calibre' (*qaalib*) and 'cotton' (*qutun*) are easily identified.

'Admiral' is derived from 'ameer-ul-ala' or 'ameer-ul-bahr'. 'Artichoke' is from 'al-kharshof'. 'Candy' is a slightly different form of Arabic 'qand' or 'qandi'. 'Makhaazin' (singular *makhzan*) or the 'storehouses' became 'magazine'.

A large number of Arabic loan words entered the English lexicon through Spanish since Spain had been ruled by the Muslims for centuries. Some such words are 'alcaide' or 'alcayde' (*al-quaid*; we can safely assume that the English word 'guide', too, is a form of 'quaid', or one who leads), 'alcazar', or a palace, (*al-qasr*).

The French language absorbed many Arabic words which were later transmitted to English with some changes. The words that arrived through

French include '*azimuth*' which in Arabic is '*as-samt*' (direction). Another astrological term is '*zenith*' that came through French. The origin is Arabic '*samt-ur-rass*'. '*Nadir*' too is a gift from Arabic though the original was not that brief *samt-un-nadhir*. Yet another stranger that adapted to western conditions is '*carafe*', which is from '*gharafa*', or 'draw water'.

Another interesting word is '*assassin*'. Derived from '*hashasheen*', this word is reminiscent of a fanatic, militant sect that would intoxicate young men by making them consume hashish or cannabis and order them to murder their political rivals [1].

There are also many Chinese borrowings in the English language. Chinese words have entered many European languages, of course, including English. Words loaning as a historic-linguistic phenomenon has existed between Chinese and English for more than one thousand years. The earliest direct contact between China and Britain took place in 1637 when the British ship reached and dealt with tea. Previous to 1637, Chinese and British contact was mainly conducted through third countries, and Chinese language influence on English was limited. According to the Oxford English Dictionary, the word "*silk*" "entered English in 888 via Latin and Greek, through the Silk Road. The entrance of *china* (porcelain) tells a similar story of indirect loaning. Comparing the loans *silk* and *china* with their models in Chinese ("*si*" and "*ci*"), we can find influential formal and phonological changes which make them more like English than Chinese.

The number of Chinese loan words in English increased during the Ming Dynasty (1268- 1644). The loaning rate sped up during the Qing Dynasty (1644-1911), and there are many borrowings dated in this time, such as "*ginseng*" (1654), "*bohea*" (1711) and "*Taoism*" (1639). The Chinese loans such as "*bohea*" (1711) and "*kaoline*" (1727) indicate that trade was one carrier of Chinese loans. Cultural terms like "*kowtow*", "*Taoism*", "*pailou*" and governmental terms such as "*yamen*" and "*taotai*" were also introduced into English through direct contacts and translation. In the 20th century, as the world wars affected the lives of everyone, many words concerning politics, culture and business entered into English. The historical changes after 1949 in China influence on English with loans, such as "*Great Leap Forward*", "*Gang of Four*", "*Four Modernizations*", "*Maoism*", etc [3, c. 71].

In general, all the Chinese words borrowed by the English language at different periods of time reflect the Chinese cultural and linguistic influences on the English language. They concern wide fields such as Chinese products, customs, economics, arts, politics and botany, etc.

It is also interesting to explore Indian loan words in the English language. If you look through an English dictionary, you will be surprised to see the number of words that came from Hindi and other Indian languages. Some of these words are easily recognizable as Indian words. There are others, though a

part of modern day spoken English, which are seldom recognized as being of Indian origin. Most of these words were assimilated during the period of 16th to 20th century, when the British were following an aggressive imperial policy abroad, especially the Indian subcontinent. India, was what made the English empire great and mighty, and was appropriately called 'the jewel of the imperial crown'. However, the British were not the only European nation, interested in India as a colony; but French, Portuguese and even Spanish, wanted to establish this country — rich in resources and manpower — as one of their own colonies. Consequently there are some words that have come to English from French and Portuguese, which in turn had been absorbed to those languages by a native Indian language.

Some of the words that came into English are easily recognizable. The first of which that, most words did not have equivalents in English, such as *yoga*, *swastika*, *khaki*, *sari* and *sati*. Some of the words were taken and given a different meaning, as *nirvana*, *kedgereee*, *Jodhpur*. However, words were rarely substituted to English words, as it happened during Old English and Middle English periods, with Latin and French words. Rather the words that were borrowed which already had meanings were used to adorn a text or speech since it sounded different and fashionable, for example, *pariah*, *pundit*, *purdah*.

Words like *cashmere*, *guru*, *jungle*, *gymkhana*, *pajamas*, *bungalow*, *yoga*, *cheetah*, and *loot* are quite obvious in their origins, being the exact same words in the local languages (Hindi, Sanskrit, Urdu) as well.

Cummerbund is taken from the Hindi *kamar*, for 'waist', and *band* for 'band'. Similarly, *Bandana* is borrowed from *bandhna*, to tie.

The drink *punch*, which is made of fruit juices mixed with water or soda water, with or without alcohol, originates from *pancha* (Sanskrit), meaning 'five', because of the five ingredients used: spirit/soda, sugar, lemon, water and tea/spices.

On a slightly dull note, *opal* is from Sanskrit *Upalah*. Another stone, *marakata*, travelled all the way to the Greek language, and then Latin under the guise of *smaragdus*, and became the English *emerald* [5].

When Indian royals wanted a massage, they would ask their servants to *champu* (Hindi, verb, for oiling and massaging) their scalp. The British made it *shampoo*.

The pronunciation took a different tone in Indian borrowings. The important modifications were mainly seen in the sounds of 't' and 'd'. In the North Indian languages 't' is mostly pronounced as 'th', as in thing; while the 'd' is pronounced as 'th' in this. When a word from this region came to English, the sound came with a hard 't' and 'd' as in *dungaree* (Hindi) and *swastika* (Sanskrit). The words that came from South Indian languages meanwhile took the exact opposite course, with 't' and 'd', being pronounced softly or not at all: as in *cheroot* (Tamil *churuttu/shuruttu*). This maybe because South Indian languages

tend to stress the sounds 't' and 'd' more, which Europeans may have considered to be disagreeable to their ear [2].

To sum up, English “loves” to borrow a great number of words from different languages. “English, perhaps more than any other language, is an insatiable borrower,” writes David Crystal in his *The Cambridge encyclopaedia of the English language* [1]. No doubt that English will continue to borrow words from Eastern languages, as trade and cultural connections between the East and the West are increasing. English is an international language, and the wider the range of its use, the more it absorbs foreign words. Due to the rapid development of modern mass media, the process of globalization and internationally cultural exchange, more and more loan words from different languages will come into English to satisfy the needs of society.

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СЕКЦИЯ «ПРОБЛЕМЫ СОВРЕМЕННОГО ОБРАЗОВАНИЯ»

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THE EDUCATIONAL CYBERSPACE.

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The increasing importance of the Internet and the ways in which students and educators react to Internet-related environment prompts consideration of the nature of this new teaching, learning and cultural environment for schools. The Internet and other interactive on-line computer-based applications are related to concepts of cyberspace. Educational cyberspace is defined as a cognitive computer-accessible space, which can be differentiated from those spaces, which are associated with the use of print and electronic media [4].

The origins of cyberspace, based on the works of William Gibson, are being discussed at the moment and the related aspects, including on-line and off-line cyberspace, hypertextuality and asynchronous communication are explored in order to develop a framework (or mapping) of future educational cyberspace development. It is concluded that understanding of perceptions of educational cyberspace will play an increasingly important role for teachers as students continue to immerse themselves in both educational and recreational use of the Internet [6, с. 3; 7, с. 8].

In the last 10 years, education has benefited from a real e-revolution – most schools and universities now have a functioning Virtual Learning Environment (VLE), at the heart of their teaching and e-learning programmes – a virtual ‘shadow’, if you will. A VLE, or learning platform, is an online system that allows teachers to share educational materials with their pupils via the web [1].

Examples include Moodle, WebCT and Blackboard. For a student to be able to access a ‘Virtual’ room as either a duplicate or extension of their physical classroom is a clear advantage for learners and teachers alike. Every educational establishment ought to integrate a VLE into their lessons and allow it to become second nature to learners and educators outside of the classroom.

Here are some reasons why:

1. Communication – opens up an infinite number of channels in the format of forums, discussion threads, polls, surveys – instant feedback either as a group or individually.
2. Producing work – students do not physically have to find their teacher to hand in work due to secure virtual ‘hand-in’ folders that have time windows.

3. Resource hub – teachers have infinite online storage space for ppts, docs, worksheets etc. that can either be secure or shared with students.
4. Dynamic home pages – teachers have the opportunity to create an exciting virtual space to represent their room/subject.
5. Links to outside sources – pathways to all other online learning spaces are linked via the VLE.
6. Embedded content – YouTube, BBC, newspapers can all be embedded as the dynamic feed of the homepage.
7. Podcasts & videos – both teacher- and student-produced podcasts and videos have a shared platform.

Although the benefits of using a Virtual Learning Environment in schools are obvious, there are plenty of sticking points to consider. As the learners themselves are all ‘Digital Natives’, the educators tend to be starting from a disadvantage as their own IT skills tend to be lacking when compared to the current IT savvy youth of today. Making any VLE as dynamic or versatile as Facebook, Tumblr and Twitter is a tall order and virtually impossible for an IT specialist teacher, let alone a humble English teacher! This competition for students’ ‘screen-time’ is hardly a fair fight – one possible reason why nearly all VLEs are described by teachers as ‘clunky’, ‘too basic’ and ‘frustrating’. Students do not wax lyrical about them either – ‘outdated’, ‘boring’ and ‘a waste of time’ are the opinions of one class of Media students.

In the near future we want to design Moodle, a learning platform for «English for special purposes – Aviation English» to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environment to solve e-learning needs to sustain, succeed and improve education in our Institute.

The following are the main components of Moodle «English for special purposes – Aviation English»:

1. Content management – creation, storage, access and use of learning resources.
2. Learner engagement and administration – managed access to learner information and resources and tracking of progress and achievement.
3. Communication and collaboration – emails, notices, chat, wikis, blogs.
4. Administrative information about the course: prerequisites, credits, registration and contact information for the instructor.
5. A notice board for current information about the ongoing course.
6. The basic content of the entire course; the complete course for distance learning applications and capsule version of the course, when used as a portion of a conventional course. This includes learning material in the form of text, audio, or video presentations and the supporting visual presentations

7. Additional resources, either integrated or as links to outside resources. They consist of supplementary reading, or equivalents for it.

Material that is your copyright may be uploaded to Moodle, but if your material has been published commercially, you should check publishing agreement to see whether its terms and conditions permit your intended distribution. For journal articles, many publishers do not allow pdf versions to be used, but may allow pre-prints or post-prints or re-publishing/re-use after specific embargo periods. [3]

As for Hot Potatoes, it is shareware from Half-Baked Software which is based at the University of Victoria in Canada. It is a program that allows you to make six different types of self-test exercises. These exercises can also quite easily be imported into an LMS like Moodle to be used for assessment of learning content.

General description of the program Exercises are made in two steps. First, you create the so-called 'data file' which has a Hot Potato XML extension (like .jcw or .jcl). This file is useless without the Hot Potatoes program but is used to edit the exercises later. The exercises are exported to web-based exercises (which have the HTML extension .htm) which can be displayed anywhere on the Web. Note that you CANNOT RELOAD THE WEB PAGES INTO THE PROGRAM, so it is important to save your data files. Before creating a Hot Potato exercise, you need to think about what you want to achieve with it. Do you want students to learn vocabulary items? Then the gap text (JCloze) or the short answer quiz (JQuiz) are the best choices. If you wish to test text comprehension, the multiple choice (JBC) or matching (JMatch) exercises are more suitable.

Audacity is a free open source digital audio editor and recording computer software application, available for Windows, OS X, Linux and other operating systems. Audacity was started in the fall of 1999 by Dominic Mazzoni and Roger Dannenberg at Carnegie Mellon University and was released on May 28, 2000 as version 0.8. [5]

WebCT is an Internet based program that gives you access to your instructor and the other students taking this course, along with various elements of the course.

The Internet is not a copyright-free' zone. Nearly all materials on the Internet and in social media are protected by copyright, including content in Google Images, YouTube, Facebook, Twitter etc. Responsibility for obtaining permissions or relying on copyright exceptions to use copyright material from these sources rests with the person/Faculty/Department or other unit at the University that re-uses the content by publication or upload. Ignorance is no defense for unauthorized use of copyright material.

However, linking to material that is lawfully available on the Internet should not raise any copyright issues, provided that users to whom the links are

provided are made aware that when they open links their use of the online material is subject to the terms of the opened site, e.g. YouTube Terms of Use [3].

In principle a learning platform is a safe and secure environment that is reliable, available online and accessible to a wide user base. A user should be able to move between learning platforms throughout their life with no loss of access to their personal data. The concept of a learning platform accommodates a continuously evolving description of functionality changing to meet the needs of the user.

One of the processes to enhance the learning experience was the virtual resource room, which is student centered, works in a self-paced format, and which encourages students to take responsibility for their own learning. In virtual mode, the materials are available in the form of computer aided learning program, lecture notes, special self-assessment module. The students have 24 hours of access to the learning material in a day which suits their life styles.

A Higher Education institution is likely to have a licence for a VLE that fits into any one of the following three categories:

1. off-the-shelf, such as Blackboard
2. open source (often free to use and adapt but support is charged for), such as Moodle
3. bespoke (developed by institutions for their own individual needs) [2].

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BALI'S GREEN SCHOOL

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This is my attitude and my response to the article I have read about a very thoughtful and a completely new way of education. The Green School, an institution with training program focusing on environmental education and ecology, locates in the thick Indonesian jungle on Bali near the Ayung River. Bali is an accumulation of volcanoes, jungles, reefs, ponds, rivers and the ocean, making tremendous landscape outside the school's window. All construction sites whatever are seen in the open were handmade from natural material, particularly bamboo, and the rest of the space has been planted with fine fruit-trees, vegetable gardens and rice plantation.

Initially, John and his wife Cynthia Hardy started planning of Green School in 2006 after their impressions on reading Alan Wagstaff's Three Springs concept document describing a country cultural education. So Bali's school opened in September 2008 with only 100 students in university, its territory being the jungle and plantation. The whole school's area is a generative organic garden. Children take an active part in upcoming fertility of the land.

Anxious about the exhaustion of the world's reserves, the Hardys wanted to create an alternative project to lumber wood being cut down as materials for construction, while solving the problem of changing climate at the same time.

They decided to reveal how to practically make construction with natural materials and to inspire and bring up people to be really ecologically-friendly.

Three objects according to their plan appeared: Green School (the constructive project), PT Bamboo (bamboo factory) and the Bamboo Community Project. All of them make common sense.

The Campus is made from renewable, locally sourced bamboo, beginning from the partitions to the stools. Housetop is made of the local organic materials. Employing fully converted energy, generated through photovoltaic panels, a micro-hydro-powered vortex generator, and bio-gas methane extracted from animal manure the Hardys accomplished their environmental plan completely. Bamboo is applied for heating water and cooking food. The sidewalk is made with stones instead cement or asphalt surfaces.

Somewhere about 300 students, aged 3 to 16 years old, from all over the planet, come to Green School to follow environment concept, as well as some of the Balinese children with the maintenance of the stipend project.

The education program encompasses carbon effect research, water purification, local agriculture study. Each student receives a piece of land. Each group has its own fruit or vegetable farm, which people work out themselves, care, gather the harvest and make meal from it and eat. They also study standard academic subjects (math, languages, science) along with creative arts and ecology.

Green School's purpose is simple and clear. The graduates will complete the training course equipped with abilities indispensable. So they can apply them wherever they are going. They also will improve themselves and become presentable world citizens, creating opinions of eventual ways to extend sustainable development of the world.

The innovative education system teaches to be discerning and original thinkers, who could protect stability of the planet and the environment. It inspires to find out more promising ways to fight the vicious treatment of the planet. No doubt, it provides with suitable information.

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А. А. Голубкина

USE OF MULTIMEDIA TECHNOLOGIES IN LEARNING A FOREIGN LANGUAGE

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The use of multimedia technologies in teaching a foreign language is one of the best recent and technological approaches in language learning. In the present times, many academicians and professionals get to know the significance of using various technological devices in the procedure of language teaching and learning equally. The new approaches have made language learning more productive, effective and communicative.

Multimedia is the combination of different content forms. It includes a combination of a text, audio, still images, animation, video, or interactivity content forms. It is usually recorded and played, displayed, or accessed by information content processing devices, such as computerized and electronic devices, but can also be part of a live performance.

Multimedia devices are electronic media devices used to store and experience multimedia content. Multimedia is distinguished from mixed media in fine art; by including audio, for example, it has a broader scope. Multimedia provides a complex multi-sensory experience in exploring our world through the presentation of information through texts, graphics, images, audio and video, and there is an evidence to suggest that a mixture of words and pictures increases the likelihood that people can integrate a large amount of information.

Multimedia combines five basic types of media into the learning environment: a text, video, sound, graphics and animation, thus providing a powerful new tool for education. Multimedia refers to graphics (digital Images), Mp3 players (digital audio players), video players (VCD, DVD players) and animations.

Multimedia teachings enrich the teaching content and make the best of class time and break the “teacher centered” teaching pattern and fundamentally improve class efficiency. Due to large classes it is difficult for students to have speaking communication. The utilization of multimedia sound lab materializes the individualized and co-operative teaching. The traditional teaching model is emphasized on teachers’ instruction, and the information provided is limited due to traditional classes.

On the contrary, multimedia technology goes beyond time and space, creates more vivid, visual, authentic environment for language learning, stimulates students’ initiatives and economizes class time.

In addition, multimedia teaching is also flexible. It is obvious that the context can be created not only in the classroom, but also after classes. Multimedia language teaching can also create a multimedia language environment for the purpose of conducting foreign communication teaching. Students are bound to have some problems in classroom teaching, which can be discussed solved under the guidance of teachers. In such circumstances, students can use the new technology to their advantage, such as manipulating the network to contact teachers, and receiving answers by email.

Learning with the help of multimedia packages is no longer a one-way process, but rather a dialogue among participants.

Most often, students use multimedia individually or in pairs in the classroom and also at home. Working with such packages students systematize lessons, revise material through games, and logically connect learning materials with real life situations. Next to the multimedia packages on CD-ROMs or floppy discs, variety of exercises, drills and examples can be found on the Internet, usually under the Education category.

Through the interaction with multimedia students become increasingly familiar with academic vocabulary and language structure. Connecting with the Internet will the increase student motivation.

Students are eager to begin classes and often arrive early at the computer lab, logging on the Internet and beginning research on their own. They also often stay after classes to continue working on the Internet. Overall, students develop greater confidence in their ability to use a foreign language because they need to interact with the Internet through reading and writing.

The use multimedia encourages provides students to gather information through media, their imaginations, interests. This technology combined with traditional teaching will create a successful teaching method.

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СЕКЦИЯ
«ВОПРОСЫ ИЗУЧЕНИЯ ИНОЯЗЫЧНОЙ КУЛЬТУРЫ»

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**INTERESTING FACTS ABOUT THE PHILIPPINES THAT WILL
SURPRISE YOU**

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The Philippines is an archipelago composed of about 7,641 islands. It's located near the equator line and that's why this country is very hot with average temperature about 28 degrees above zero.

As for religion, 90% of Filipinos are Christians with combination of Catholic and their culture is a combination of Eastern and Western cultures especially American, Buddhism, Philippine and Spain. One of the most visible Hispanic legacies is the prevalence of Spanish names and surnames among Filipinos. The common use of the English language is an example of the American impact on Philippine society. It has contributed to the ready acceptance and influence of American pop cultural trends. This affinity is seen in Filipinos' love of fast food and American films and music.

As for holidays they usually celebrate such as: New years Day, Christmas, Easter but they also have their own specific festivals, for instance: Day of the Dead and All Saints' Day.

They don't celebrate the New Year's Day as long as we do because Filipinos don't have so many days off. On the 1st of January they make fireworks show the whole night as they think it chases away evil spirits and also they put a lot of money into their wallets to have much money next year.

Speaking of Easter, they celebrate it in the same way, but the most zealous believers nail themselves to crosses just as Christ was crucified. They don't work on Labor Day and Independence Day the same as we do.

On All Saints' day Filipinos honor the saints by attending the church and pray. Some bring flowers to the graves of their ancestors or light candles on the top of the graves.

On Day of the dead a lot of Filipinos spend their time in the cemetery. It's customary to play cards, dance and sing throughout the day. Filipinos feel comfortable around their departed, wishing them to take part in the festivities. On this day an extra portion is placed out for each departed soul during meals.

As for Christmas, the official date is on the 25th of December but they usually start celebration from the December 16th. There are a lot of concerts

outside and on these days Filipinos go to church more often than usually. This holiday is a family fiesta; they spend more time together and it is customary to exchange gifts.

They don't give gifts like we do on birthdays and if you have a birthday you don't need to make up a party and cook anything because your friends usually make a party. In other words guests bring food and drinks instead of gifts.

Manila is the capital of the Philippines. It is the most overcrowded city in the world, there are 43 079 people per square kilometer, in comparison with Moscow where there are 4833 people per square kilometer.

There are a lot of homeless people, including children. They live everywhere. As a usual thing people treat them decently in Manila. Homeless people live even in the cemetery. I have a pen pal from the Philippines and when I asked her why they live there. She explained to me that it's much better to live in a cemetery for homeless because they can find some shelter there. A funeral is very different. When a person dies the blood is drained out of the body to preserve it because a public viewing lasts more than in Russia. They call it embalming and the family decide it themselves whether or not to do it.

The Philippines is the only country where divorces are prohibited, although people can do it but in a very special case, which takes some years and costs a fortune, and that's why the wedding is much more important event than in Russia and they often get engaged before wedding. Abortions are also prohibited perhaps that's why it's customary to have more than 3 children.

Filipinos are very hospitable, giving and polite; they share food and even clothes, if you ask anyone on the street «can you give me some food»? They will definitely share it, even if they have just a little. As my friend told me «we share our food but since the percentage of poor people here is high, we can't cope up».

Their gestures are different, for instance: when they don't understand a person instead of saying well-known phrases such as «could you repeat it, please» or «I'm sorry, I didn't catch it» they just open their mouths and wait for repeating what you've just told them. European people nod when they agree with a person and want to say yes but Filipinos just raise their eyebrows. The fact which shows difference in culture is that it isn't customary to kiss outside, they do it only when they greet, so they don't kiss in public, they don't exchange passionate kisses. One more interesting fact is that all Filipinos have always tooth brushes and paste on them and brush their teeth every time after eating. If you ask someone out it means that you will pay for the partner except your very close friends.

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МИГРАЦИЯ РОССИЯН В АНГЛОГОВОРЯЩИЕ СТРАНЫ

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Первостепенное значение для решения поставленных нами задач, имеют исследования, непосредственно направленные на изучение причин миграции россиян в англоязычные страны. В этой статье так же рассмотрим вопросы и проблемы в изучении иноязычной культуры.

Волны иммиграции из России в англоговорящие страны, такие как Соединенные Штаты Америки, Британия, Франция, всегда носили своеобразный характер. Во все периоды основную группу иммигрантов составляли люди, искавшие что-то новое. Рассмотрим миграцию россиян в США.

Условно существует четыре волны российской иммиграции. Первая волна – происходила в XVIII–XIX веках и была связана с российским освоением Америки. В ней участвовали русские первопроходцы. Вторая волна - проходила в конце XIX – начале XX веков, и была представлена евреями из Российской империи. Третья - небольшая волна, состоявшая из политэмигрантов из СССР в конце 1960-х годов. Четвертая и самая многочисленная волна была связана с падением железного занавеса в конце 1980-х – начале 1990-х годов, в это время группы иммигрантов составляли русские, украинцы, евреи, армяне. Поэтому Америка сейчас так же этнически пестра, как Россия.

Многочисленные исследования показывают, что определяющее влияние на миграцию россиян является: политическая свобода, поиск лучшей жизни, свобода от ограничений в экономике, поиск религиозной свободы, воссоединение семей.

Политическая свобода – один из главных факторов миграции. Во-первых, в России в такие времена, как годы правления Сталина, период

социализма, в периоды восстания большевиков, жесткой цензуры, людям необходима была свобода, особенно тем, кто занимался творческой деятельностью для народа, то есть писатели, публицисты, художники и многие другие, шедшие против жесткой власти, против тоталитаризма. В 20 веке в России нет жестких законов, волна миграции убавилась, однако россияне в поисках лучшего, или же просто уезжать на постоянное место жительства в Америку и другие страны.

Для Соединенных Штатов Америки иммиграция является основным источником прироста населения, а также изменений, происходящих в этой стране. Иммиграция очень неоднозначно оценивается политиками государства, хотя сами США сформировались как нация переселенцев. Много говорится о проблемах, связанных с расовыми и национальными конфликтами, появлением так называемой этнической преступности, экономическом давлении на социальную сферу. Но как бы там ни было, с 1965 года – то есть с того времени, как миграционная политика в Соединенных Штатах была либерализована – количество иностранцев, осевших в стране, увеличилось в 4 раза. За первые десять лет XXI века в США приехали более 14 миллионов мигрантов. Эксперт КГИ Александр Гребенюк говорит, что недостаточно информации для оценки потока эмигрантов в 2010-е гг.: «По нашим данным, порядка 120 000–150 000 человек уезжают ежегодно с 2013 г. [2].

Американцы русского происхождения – явление очень древнее для США. Они начали приезжать сюда еще во времена Российской империи. На данный момент в Америке находится очень большая русская диаспора – около трех миллионов родившихся в России и нелегальных граждан. «Поскольку многие русскоязычные переехали в США из крупных городов России, Украины, Беларуси и так далее, то и жить они часто стремятся в американских мегаполисах – Нью-Йорке, Лос-Анджелесе, Филадельфии, Хьюстоне, Балтиморе, Кливленде, Атланте, Чикаго, Сан-Франциско, Вашингтоне».[1] В Соединенных штатах даже образованы русские школы, построены православные церкви, русские магазины с российским продовольствием, работают на работах, где практически не нужен английский – в отечественных фирмах. Примером такой улицы является Брайтон-бич в Нью-Йорке.

Отношение жителей США к русским приблизительно такое же, как и к другим иммигрантам. Разные культуры, характеры и истории государств. Для американцев русские – суровые люди, практически никогда не улыбаются. Приезжие из России для американских граждан ценятся как хорошие работники. Русскую кухню американцы не понимают и часто недолюбливают.

Для мигрантов есть как плюсы, так и минусы в проживании в Америке. Из плюсов можно отметить благополучие, возможность

хорошего заработка, качественное обслуживание в любом заведении, климат разнообразнее чем в России. Из минусов можно отметить очень дорогую медицину, трудности с получением иммиграционной визы (зависит от национальной принадлежности), национальные конфликты в стране, чтобы влиться в американский образ жизни, приходится с головой погрузиться в английский язык.

Иммигрировать в США нелегко, но те россияне, которые прошли через трудности и бюрократические препятствия и преодолели их, сумели устроить для себя достойную жизнь. У русских иммигрантов в Соединенных Штатах есть два пути: жить внутри культурной среды соотечественников или влиться в американское общество. Жизнь среднестатистического американского гражданина – это свобода и ответственность, борьба за успех, высокие налоги и почасовая зарплата. В этой стране каждый возделывает свой сад и наслаждается его плодами.

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А.Д. Безруков

THE THREE BIGGEST CELEBRATIONS IN IRELAND

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Ireland is one of the most interesting countries which has a very peculiar culture and some unusual traditions.

St. Patrick's Festival

The biggest of all holidays in Ireland is the 'n St. Patrick's Festival, named after the patron saint of Ireland, celebrates the rich culture and heritage of the country with parades, dances, music, food and lots of pints of beer. What began as a one-day holiday on March 17 is a multi-day holiday, enjoyed by over a

million local residents every year. Although the celebration of Dublin is perhaps one of the largest in the country, you are guaranteed to find festive festivities throughout Ireland, from small villages to major metropolitan cities.

Christmas

Christmas in Ireland is a grand celebration, which lasts from December 24 to January 6, although many consider December 8 the official start of the season. The singing of choirs and street musicians is heard these days. Crowds of Catholics of Ireland go to church on the eve of Christmas. On December 26, St. Stephen's Day is celebrated, a national holiday in honor of the Christian martyr, celebrated with traditional rituals, holidays and trips to pubs in Ireland.

Bloomsday

The Irish Bloomsday celebration honors James Joyce, one of Ireland's most famous literary masters. This event is held each year on June 16, the day in which Joyce's classic novel "Ulysses" takes place. First celebrated in Ireland in 1954, Bloomsday is now a worldwide event celebrated by Joyceans across the globe. Dublin's James Joyce Centre hosts a number of events in the days leading up to Bloomsday, including reenactments, performances, readings and breakfasts based on cuisine featured in the novel. Some Bloomsday enthusiasts even don Edwardian costumes and make pilgrimages to Dublin locations mentioned in the book.

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Я.В. Мурзакова, Н. Н. Тарасова

CULTURAL MONUMENTS OF ANCIENT TIMES

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When we hear "Great Britain" many of us immediately visualize London, Big Ben, the London Eye. What is Great Britain really famous for? Let's see, why do all such associations arise and what does it threaten? If you ask any schoolchildren what they know about the United Kingdom, they will confidently repeat this famous phrase "London is the capital of Great Britain". If you ask any schoolchildren what they want to see in England, they will surely say "Big Ben". And perhaps, here all their knowledge ends. And why? Because we do not know any other landmarks. It is sad to look at how historically developed architectural structures and monuments are disappearing together with their history. All that had been so long and stubbornly built by the ancestors so quickly dies in our days. In the UK there are countless buildings of

different ages: from megalithic tombs dating back to the Neolithic era to Forth Bridge, which was designated World Heritage Site in 2012.

So why do not we pay enough attention to memorable places? After all, they have lived the history of England from the beginning of its foundation. One can assume that one of the reasons is the lack of interest in the study of countries. Now many people spend most of their time on the Internet and are practically not interested in anything, and when they come to other cities / countries they visit places they briefly heard about. This leads to another equally important problem: in the media, educational institutions, newspapers, they do not publish a list and description of historical places, but offer to study us about what they say almost every day. If you look at the list of the most popular places in England, then the first place will be Big Ben, which became a symbol of Britain and is found in all tourist brochures and postcards. In the second place - Buckingham Palace, the official residence of Elizabeth II, the place where the queen has been performing her duties for more than 40 years, - in general, has been working for the benefit of the United Kingdom. And, the third most popular place is the Tower Bridge, another symbol of London, along with Big Ben, occupying an honorable place on tourist postcards. No, I'm not saying that these places are terrible and it is worth forgetting about them, I just encourage people to expand their horizons and pay attention not only to what they say every day, but also to the history of the country, to its historical buildings that played important role in this or that period.

With this in mind, I would like to tell about some of the unknown landmarks in the UK.

There is a castle in the UK which is considered one of the most beautiful and romantic in Europe. Its history begins in the 9th century and is inextricably linked with the life of England itself. It is in this castle where for hundreds of years the fate of the country was decided, important meetings and receptions were held. It was one of the most favorite places of many kings and queens. But, of course, everything comes to an end. And if you thought I was talking about Buckingham Palace, then you are mistaken. This castle is called Leeds Castle.

Leeds Castle is located near London, on the river Len. And at the moment it is open to tourists. But not many people know about this. And when they come to England, they leave this place unattended.

Next architectural monument which I can not help but tell about – Canterbury Cathedral – is not just a beautiful old building. It is the place of worship, a place for meetings, a sanctuary, a refuge, a place of joy and sometimes of sadness, but above all, looking at it we can say how people lived in the Middle Ages and made the cathedral what it is today. The cathedral is often called “England in stone”, as its history is closely connected with the history of the country. From its first Archbishop Augustine, who established

Christianity in England to the role of Archbishop Langton, the history of the Canterbury Cathedral is also rich. Canterbury Cathedral has been reconstructed and modified many times due to frequent raids and fires, and it acquired a modern look in the thirties of the nineteenth century. But it did not have a quiet life in the twentieth century, because during the Second World War, in 1942, it was badly damaged by bombing of German troops. Today, the cult building of England is the church of the Royal Regiment of the Queen of Wales and it needs a very big restoration.

Studying the materials on this issue, I found an interesting article about the sea fortress of Maunsell, which is located in the North Sea near the coast of Great Britain, built during the Second World War in 1942, designed by engineer Guy Maunsell (Guy Maunsell). The need to build defensive platforms was caused by the attacks of German aircraft from the Irish Sea on the Liverpool docks. It was decided to use a group of 7 separate towers connected by footbridges. Their main tasks were to protect the large industrial centers of England from air attacks and to protect approaches from the sea to London and Liverpool, respectively. The goal was not to allow German aviation to bomb English ports and mine lively shipping routes. During the military operations of the forts, they shot down only about 22 enemy aircraft and 30 cruise missiles V1. During the Cold War, the forts were urgently re-alerted. In 1952, they installed new radar equipment and improved models of searchlights. Of the 21 army towers built on the Thames, only 6 survived to this day. Most of the structures are not subject to restoration. The fortress of Maunsell played an important role in the history of England, but for some reason this is not written in textbooks.

The problem of careful attitude to the cultural heritage has always remained at the center of attention. Moreover, it is obvious that historical buildings not only reflect the history of the nation, in particular, some important moments in the life of this country, but also reflect the spiritual life of the people, their national peculiarities, and their artistic thinking. Many years will pass. New cities will be built. Modern jets will become ridiculous and slow, and the train ride will seem as amazing as traveling in the mail coach. But, for instance, the Durham Cathedral will remain the same as a thousand years ago. And so will paintings in the London National Gallery. All this already belongs to the future today. Grandsons of our grandchildren. One can not forget the fact that the monuments of culture of distant eras are an eternal torch that different generations pass to each other. It depends on us for the flame in it not to be shaken even for a minute.

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THE MASTERPIECES OF ENGLISH LITERATURE

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No doubt that English literature is a gem in the crown of the world literature. England is the Motherland of such great writers and poets as William Shakespeare, George Gordon Byron, Arthur Conan Doyle, Gerbert Wales, Sharlotte Bronte, Agatha Christie and others.

Throughout the centuries people admire their works: “Romeo and Juliet”, “Hamlet”, “Pigmalion”, “The Adventures of Sherlock Holmes”, “The murder in the Orient Express”, “Jane Eyre» and many- many others.

These books teach people to live, to overcome difficulties, to make the right decision, to avoid errors, to believe in love and friendship, to choose true friends, to hope for the best, to be optimists.

These great novels, stories, plays, poems make our life interesting, develop our mind and soul, enrich our speech, educate us, teach us to analyse literary works and make the right conclusions. It is known that reading to the mind is what exercise is to the body. In my opinion, the most famous and honorable writers are William Shakespeare and Agatha Christie.

Life and creative work of William Shakespeare

William Shakespeare was an English poet, playwright, and actor. He was the son of John Shakespeare, an alderman and a successful glover, and Mary Arden, the daughter of a rich landowner. He was born in Stratford-upon-Avon and baptized there on 26 April 1564. His birthday is traditionally celebrated on April 23. Stratford had a grammar school of good quality and the education there was free, so the bailiff of the town sent his son there. The boy’s education consisted of mostly Latin studies: learning to read, write and speak language well and studying some of the classical historians, moralists.

At the age of 18, Shakespeare married 26-year-old Anne Hathaway. Anne gave a birth to a daughter Susanna, baptized on the 26 May 1583. Twins, son Hamnet and daughter Judith followed almost two years later and were baptized on the 2nd of February, 1585. Hamnet died of unknown causes at the age of 11.

After the birth of the twins, Shakespeare left few historical traces. Nicholas Rowe, Shakespeare's first biographer, recounted a Stratford legend that Shakespeare fled the town for London to escape prosecution for deer poaching in the estate of local squire Thomas Lucy. Another 18th-century story has Shakespeare starting his theatrical career minding the horses of theatre patrons in London. A biographer John Aubrey reported that Shakespeare had been a country schoolmaster.

London and theatrical career

It is not known definitively when Shakespeare began writing, but contemporary records of performances show that several of his plays were on the London stage in 1592. After 1594, Shakespeare's plays were performed only by the Lord Chamberlain's Men, a company in London.

After the death of Queen Elizabeth in 1603, the company was awarded a royal patent by the new King James I, and changed its name to the King's Men. In 1599, a partnership of members of the company built their own theatre on the south bank of the River Thames, which they named the Globe. Extant records of Shakespeare's property purchases and investments indicate that his association with the company made him a wealthy man, and in 1597, he bought the second-largest house in Stratford.

Later years and death

Shakespeare plays were published and staged with great success. He continued to act in his and other plays after the success as a playwright. Shakespeare retired to Stratford some years before his death. He was still working as an actor in London in 1608.

In 1609 the bubonic plague raged in London. The London public playhouses were closed during outbreaks of the plague and there were no acting work. Shakespeare continued to visit London during the years 1611–1614. After 1610, Shakespeare wrote fewer plays.

Shakespeare died on 23 April 1616, at the age of 52. No extant contemporary source explains how or why he died. Half a century later, John Ward, the vicar of Stratford, wrote in his notebook: «Shakespeare, Drayton, and Ben Jonson had a merry meeting and, it seems, drank too hard, for Shakespeare died of a fever there contracted».

Shakespeare was buried in the chancel of the Holy Trinity Church two days after his death. Shakespeare has been commemorated in many statues and memorials around the world, including funeral monuments in Poets' Corner in Westminster Abbey.

Shakespeare's works

Shakespeare's extant works including collaborations consist of 38 plays, 154 sonnets, two long narrative poems, and a few other verses. His plays were translated into every major living languages and are performed more often than the plays of other playwrights. The first recorded works of Shakespeare are

“Richard III” and the three parts of “Henry VI”, written in the early 1590s during a vogue for historical drama. Shakespeare's plays are difficult to date precisely, however, and studies of the texts suggest that “Titus Andronicus”, “The Comedy of Errors”, “The Taming of the Shrew”, and “The Two Gentlemen of Verona” may also belong to Shakespeare's earliest period. His first histories dramatise the destructive results of weak rule and justify the origins of the Tudor dynasty. The early plays were influenced by the works of other Elizabethan dramatists. “The Comedy of Errors” was based on classical models. “The Taming of the Shrew” may have derived from a folk story, its story of taming of a woman's independent spirit by a man troubles modern critics and directors.

Shakespeare's early comedies give way to the romantic atmosphere. “Midsummer Night's Dream” is a witty mixture of romance, fairy magic, and comic lowlife scenes. Shakespeare's next comedy romantic “Merchant of Venice”, contains a portrayal of the vengeful Jewish moneylender Shylock, which reflects Elizabethan views but may appear derogatory to modern audiences. The wit and wordplay of “Much Ado About Nothing”, the charming rural setting of “As you like it”, and the lively merrymaking of “Twelfth Night” complete sequence of great comedies. After the lyrical “Richard II”, written in verses, Shakespeare introduced prose comedy into the histories. His characters become more complex and tender as he switches comic and serious scenes, prose and poetry and achieves variety of his work. This period begins and ends with two tragedies: «Romeo and Juliet», the most romantic tragedy of love and death, and “Julius Caesar”- which introduced a new kind of drama.

In the early 17th century, Shakespeare wrote the so-called “problem plays” “Measure for Measure”, “Troilus and Cressida”, “All's Well That Ends Well” and a number of his best tragedies. Many critics believe that Shakespeare's greatest tragedies represent the peak of his art. The titular hero of “Hamlet” was discussed more than any others especially for his famous monologue which begins “To be or not to be; that is the question”. His fatal error was hesitation.

The heroes of the following tragedies “Othello” and “King Lear”, are undone by hasty errors of judgement. In “Othello”, the villain Iago stokes Othello's jealousy to the point where he murders the innocent wife who loves him. In “King Lear”, the old king commits the tragic error of giving up his powers, initiating the events which lead to the murder of Lear's youngest daughter Cordelia. According to the critic Frank Kermode, “the play offers neither its good characters nor its audience any relief from its cruelty”.

In “Macbeth”, the shortest and most compressed of Shakespeare's tragedies, uncontrollable ambition incites Macbeth and his wife, Lady Macbeth, to murder the rightful king and usurp the throne until their own guilt destroys them in turn. In this play, Shakespeare adds a supernatural element to the tragic structure.

In his final period, Shakespeare turned to romance or tragicomedy and completed three more major plays: “Cymbeline”, “The Winter's Tale”, and “The Tempest”. These plays are graver in tone than the comedies of 1590s but they end with reconciliation and the forgiveness of tragic errors. Some commentators have seen this change in mood as evidence of a more serene view of life on Shakespeare's part, but it may merely reflect the theatrical fashion of the day.

Shakespeare's work has made a lasting impression on later theatre and literature. He expended the dramatic potential of characters, plot, language and genre.

Shakespeare influenced novelists such as Thomas Hardy, Charles Dickens and many others. His contribution in English and world literature is difficult to overappreciated.

The famous literature critic Ben Jonson called Shakespeare the “Sold of the age, the appliance, delight, the wonder of our stage”. He said, “He was not of an age, but for all time”.

In conclusion one can say the books by English writers are interesting to the people who are interested in Great Britain and who learn the English language. They not only have a breathtaking plot and intrigue, but they give abundant information about the historical events, customs and traditions of British people, about their way of life, manners, characters, culture. The authors describe English homes with their fire-places, lawns with flowerbeds, English food and table manners. In their works readers can find the examples of delicate English humor, stiff behavior, respectable attitude to animals and love for speaking about the weather. Each book open new pages of English culture. Books by English writers will always be interesting for curious people.

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THE QUEEN OF THE DETECTIVE GENRE

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While reading a detective novel a reader goes through a labyrinth of mysteries and suppositions trying to guess who a criminal is. It's a difficult task and causes the intensive work of brain. It is an exercise for our brains. The author makes us think logically and find different versions. But the result is often unexpected: the murderer is a person who we didn't even suspect. And we

admire the author who invented such an intriguing plot. No doubt, a detective writer is a genius, and Agatha Christie is the best of them.

Agatha Christie is an English crime novelist, short story writer and playwright. She is best known for her 66 detective novels and 14 short story collections. She also wrote the world's longest-running play, a murder mystery, *The Mousetrap*, and six romances under the name Mary Westmacott. In 1971 she was made a Dame for her contribution to literature.

Guinness World Records lists Christie as the best-selling novelist of all time. Her novels have sold roughly 2 billion copies, and her works come third in the rankings of world's most-widely published books, behind only Shakespeare's works and the Bible. She remains the most-translated individual author – having been translated into at least 103 languages.

In 2013, *The Murder of Roger Ackroyd* was voted the best crime novel ever by 600 fellow writers of the Crime Writers' Association. Most of her books and short stories have been adapted for television, radio, video games and comics, and more than thirty feature films have been based on her work.

First novels

Christie had long been a fan of detective novels, having enjoyed Wilkie Collins' "The Woman in White" and "The Moonstone" as well as Sir Arthur Conan Doyle's early Sherlock Holmes stories. She wrote her own detective novel *The Mysterious Affair at Styles* featuring Hercule Poirot, a former Belgian police officer noted for his twirly large "magnificent moustaches" and egg-shaped head.

She then met Archibald Christie (1889–1962). He was an army officer, Archie proposed marriage, and Agatha accepted. They married on the afternoon of Christmas Eve 1914.

In order to tour the world promoting the British Empire Exhibition, the couple left their daughter Rosalind with Agatha's mother and sister. They travelled to South Africa, Australia, New Zealand, and Hawaii. In late 1926, Archie asked Agatha for a divorce. He was in love with other woman.

Second marriage and later life

In 1930, Christie married archaeologist Sir Max Mallowan, having met him during an archaeological dig. Their marriage was happy and lasted for 36 years until Christie's death in 1976.

Christie frequently used settings that were familiar to her for her stories. Her travels with Mallowan contributed background to several of her novels set in the Middle East.

During the Second World War, Christie worked in the pharmacy at University College Hospital, London, where she acquired a knowledge of poisons that she put to good use in her post-war crime novels. For example, the use of thallium as a poison was suggested to her by Chief Pharmacist Harold

Davis and in *The Pale Horse*, published in 1961 she employed it to dispatch a series of victims.

Christie lived in Chelsea. Christie led a very low-profile life despite being known, She was for many years President of the local amateur dramatic society.

To honour her many literary works, she was appointed Commander of the Order of the British Empire in the 1956 New Year Honours. The next year, she became the President of the Detection Club. In the 1971 New Year Honours, she was promoted Dame Commander of the Order of the British Empire, three years after her husband had been knighted for his archaeological work in 1968. They were one of the few married couples where both partners were honoured in their own right.

From 1971 to 1974, Christie's health began to fail, although she continued to write. Canadian researchers have suggested that Christie may have begun to suffer from Alzheimer's disease or other dementia.

While writing her novels and stories A. Christie created two outstanding attractive and charming images: Hercule Poirot and Miss Marple. They are very wise, observant, reserved, brave, modest, attentive, friendly, with good manners and taste. They always try to find the fair decision. These heroes must serve an example for modern policemen and investigators.

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Ю.В. Плаксина

POPULAR COMMAND SPORTS IN THE UNITED KINGDOM

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United Kingdom is the country that gave birth to many world sports including soccer, rugby, cricket, golf, tennis, badminton, squash, boxing, snooker, billiards and curling. The British are great lovers of competitive sports; and when they are neither playing nor watching games they like to talk about them, or when they cannot do that, to think about them. There are a lot of sports in Britain today and of course, there is no use in considering all of them. I try to make a short review of the most famous command sports in the UK. And the first one is the most popular game in the world – football.

Sure, football is the most popular sport in England, the British play it for hundreds of years. Association football remains one of the most popular games played in the British Isles every year in May. The most famous football teams in

England are Manchester United, Arsenal and Liverpool. Two of the most popular football championships in the U.K. are the FA Cup and the Capital One Cup. In each of these tournaments, 92 professional football clubs participate each year under 4 main divisions. Hundreds of thousands of people in all of the United Kingdom play football in parks and sites in their spare time.

Rugby originated from Rugby School in Warwickshire. Rugby has some similarities with football, but the game uses is not round and oval ball. Players can touch the ball with his hands and select the ball to each other. Best rugby team involved in the final Super League every year in September. For many years only representatives of wealthy classes (upper classes) played rugby, but now the sport is popular throughout the UK. There are two types of rugby, one of which is popular mainly in the north of England, and the second - in the rest of England, Scotland, Wales and Ireland.

Cricket is a game in which the British are playing on green areas, lined with grass, in towns and villages from April to August. Rules of the game have been set in the eighteenth century Merilebonskim cricket club. They were based on the rules of cricket North London. There are now thousands of cricket teams in the U.K. and at the time of writing, approximately 18 country clubs; 17 in England and 1 in Wales. Each year they compete in what is known as the first class country championship, which is the oldest cricket championship in the world.

Cricket is also played by women and girls. The governing body is Women's Cricket Association, founded in 1926. Women's cricket clubs have regular weekend games. Test matches and other international matches take place. The women's World Cup is held every four years. But There is The Marylebone Cricket Club (MCC) and Lord's cricket ground in the United Kingdom. The MCC was founded in 1787, and is still the most important authority on cricket in the world. As a club it is exclusively male. No woman is allowed to enter the club buildings.

One of the types of equestrian sport is polo, which is "born" in England in the nineteenth century army officers. It is the fastest sport in the world with the ball. Four horsemen of the team play in polo. The ball moves across the field with a special stick. The goal - to hit the opponent as much as possible the number of times. The game is played on the site, covering an area of five or six football fields. The match consists of periods lasting 7 minutes, called "Chakka".

National sports in Great Britain is a very interesting question, because many kinds of sport have taken the origin in England, such us football and rugby. In the life of the British sport is not the last place. The British love sports, they are called sports-lovers in spite of the fact that some of them neither play games nor even watch them. They only like to speak about sports.

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SEHENSWÜRDIGKEITEN VON MÜNCHEN

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München ist eine der wenigen Städte in Deutschland, die in historische und moderne Viertel nicht geteilt wurde. Das Alte ist mit dem Neuen gemischt und das fügt dieser Stadt eine Art Lebensfreude zu.

Die Frauenkirche ist die Hauptkathedrale von München. Ihre Markenzeichen sind zwei Türme mit den bauchigen Kuppeln. Die Frauenkirche ist eines der wichtigsten Wahrzeichen der Stadt München. Diese Kirche ist ein Backsteingebäude mit dem ausgeprägten spätgotischen Aussehen.

Die alte Pinakothek ist die bekannteste von allen Sehenswürdigkeiten der Stadt München. In ihrer Galerie gibt es wahre Schätze der Kunst. Unter den Exponaten kann man die größte Sammlung von Gemälden von Rubens, und auch von flämischen, niederländischen, französischen, spanischen und italienischen Meistern sehen. Das Gebäude, in dem sich die Galerie befindet, ist ein Bau, der wie ein Turm aussieht. Dieses Gebäude wurde zwischen 1826 und 1836 von Graf von Klenze gebaut gelassen, um dort eine Sammlung von bekannten Künstlern, die im Besitz Herzog Wilhelm IV. waren, zu speichern.

Das Schloss Nymphenburg, die ehemalige Sommerresidenz der königlichen Personen, hat in den letzten 200 Jahren bis zu der heutigen Größe (fast ein Kilometer) gewachsen. Das Schloss Nymphenburg ist im Stil des Barock und Rokoko gebaut und ist eines der bemerkenswertesten Beispiele der mittelalterlichen Kunst und der Architektur. Alle Räume des Schlosses sind prächtig ornamentiert. Die Ausbauarbeiten wurden aus Gips gemacht, der Boden wurde mit dem natürlichen Laminat gefliest. Heute befindet sich hier das Marstallmuseum, das Museum der königlichen Kutschen.

Das Deutsche Museum ist das größte Museum für Wissenschaft und Technologie. Hier befinden sich die wertvollsten Expositionen in der Welt. Die Ausstellung umfasst fast jeden Bereich der modernen Wissenschaft – von dem Steinzeitwaffen bis zu den modernen Computer. Die Exponate des Museums werden auf den 6 Stockwerken, in den 30 Abteilungen verteilt. Unter den hervorragenden Exponaten sind Autos, Lokomotiven und Flugzeuge, von denen viele eine historische Bedeutung haben. Ein Teil des deutschen Museums befindet sich in einem IMAX-Kino, in dem Abenteuer-Filme gezeigt werden.

Das Residenz Museum (der ehemalige Palast von Bayerns Kaisern) ist ein architektonisches Denkmal, das eine Pracht des mittelalterlichen Deutschlands darstellt. Derzeit wird Palast in mehrere Museen unterteilt. Das Residenzmuseum und die Schatzkammer der Residenz sind bekanntesten. In der Schatzkammer befindet sich eine riesige Sammlung von Porzellan, religiösen Gegenständen, Wandteppichen, Möbel und Kunstgegenständen. Das Juwel der Sammlung ist die bayerische Krone des 19. Jahrhunderts.

Englischer Garten von Nymphenburg Schloss ist einer der größten innerstädtischen Parks der Welt. Der umfasst mehrere Hektar Grünfläche. In einer der Ecken des Englischen Gartens befindet sich der See, auf dem man Boot fahren kann. Der Park ist ein großartiger Ort, um sich zu entspannen und die Zeit zu verbringen.

In München gibt es zwei Rathäuser. Das Neue Rathaus ist seit seiner Fertigstellung Sitz des Oberbürgermeisters, des Stadtrats und der Stadtverwaltung. Das kleinere Alte Rathaus dient noch als Repräsentationsgebäude, sein großer gotischer Festsaal wird für Festakte wie Symposien, Gedenkfeiern oder Preisverleihungen genutzt.

Die Münchner Stadtgeschichte ist eng mit dem Marienplatz verbunden. Tagtäglich erinnert ein besonderes Spektakel in luftiger Höhe an die Geschichte der Stadt. Das Glockenspiel stellt mit 16 Figuren und 43 Glocken die Hochzeit von Herzog Wilhelm V. mit Renate von Lothringen 1568 dar, bei der der bayerische Ritter seinen lothringischen Gegner im Ritterturnier besiegte. Auf der unteren Etage tanzen die Schächler. Seit 1908 können die Zuschauer das Glockenspiel mehrmals täglich erleben.

Die Asamkirche im Stil des späten Barock, die Kunst-Sammlung der Städtischen Galerie in Lenbachhaus und die von Herzog Wilhelm dem V. in 1589 gegründete alte Brauerei in Hofbrauhaus und andere Gebäude der Stadt München machen die Stadt besonders schön.

В.А. Волков

ÖSTERREICH

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Die Republik Österreich wurde im November 1918 nach Zerfall der Doppelmonarchie Österreich-Ungarn gegründet [2]. Österreich liegt im südlichen Mitteleuropa und hat die Fläche von 83854 km [1].

In Österreich leben etwa siebeneinhalb Millionen Einwohner. Die Republik Österreich ist ein Bundesstaat und besteht aus neun österreichischen Bundesländern. Die Bundesländer heißen: Niederösterreich, Oberösterreich, Salzburg, Tirol, Burgenland, Kärnten, Steiermark, Vorarlberg und Wien.

Österreich ist ein schönes Gebirgsland, in dem circa 60% die hohen Alpen einnehmen. Der höchste Berg in Österreich ist der Großglockner mit 3797 Metern [2]. In Österreich gibt es viele wunderbare Seen. Manchmal nennt man dieses Land wie Seenland. Am populärsten sind das Salzkammergut und Kärnten mit seinem Heilwasser. Im Sommer kann die Temperatur des Wassers in ihnen 28-Grad Celsius erreichen [1].

Sehr schön ist das Bundesland Tirol. Die Alpen sind hier sehr hoch und in der Umgebung gibt es viele wunderbare Wälder und Seen, wo wilde Tieren und Vögel wohnen. Das Bundesland Tirol ist durch seine Volkslieder besonders bekannt.

Die Republik Österreich ist ein hoch entwickelter Industriestaat. Er verfügt über Vorkommen an Erdöl, Eisenerz, Kohle und Magnesit. Man gewinnt auch Kupfer, Silber, Zink und andere Bodenschätze. Ziemlich groß sind die Wasserkraftreserven Österreichs. Die führenden Industriezweige sind die Elektroindustrie, die chemische und die elektroenergetische Industrie, der Maschinenbau, die Bekleidungs- und Textilindustrie [2]. Die Landwirtschaft bedeckt fast vollständig den Bedarf des Landes an landwirtschaftlichen Erzeugnissen. Der wichtigste Zweig der Landwirtschaft ist die Tierproduktion.

Österreich ist ein herrliches Land mit der großen Geschichte und Kultur. Dieses Land gab uns Mozart. In Österreich lebten und wirkten Haydn, Beethoven, Schubert, Strauß. In diesem Land klingt ihre herrliche Musik bis heute.

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DOCTOR WHO

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“Doctor Who” is a British science-fictional TV-series produced by BBC since 1963. The main character of the TV-series is The Doctor who belongs to a race of Time Lords from planet called Gallifrey. He is a very intelligent person who travels through space and time with his best friend, which is also his time

machine named TARDIS that looks like a police box from 1960s and is actually much bigger inside than outside. This police box has become a symbol of the series. During his journey he often accidentally saves The Earth and other worlds from total and local extermination. From time to time The Doctor finds creatures, mostly human beings, who become his companions in his never ending journey. During his journey he constantly gets new adventures, friends and enemies, the main of which are Daleks, Cybermen and The Master, and becomes well-known in each place in the universe.

According to the nature of Time Lords race, The Doctor has an ability to live much longer than people do, but his life is not endless. Therefore every time he's close to death he starts to regenerate to a new body. Each of his incarnations has its own significant temper and habits, which differ him from all other. This fictional trick which gives the TV-series and ability to easily change actor for the main character without destruction of the plot. Through the history of this TV-series The Doctor was played by 12 different actors.

The whole TV-series is divided into two parts. "Old school" part of TV-series includes all episodes released before 1996. Everything released after that is deemed as "new school". Nowadays the TV-series still continues and is included into Guinness World Records as the most long-term TV-series ever. It also has few side stories, which exist as independent TV-series with the same characters and some actors. The most popular of them are "Torchwood", "The Sarah Jane Adventures" and "K-9".

This TV-series is popular not only in The United Kingdom, but is well-known and loved all over the world and has a huge number of followers from different countries. The TV-series has become the cult-favourite for several generations of viewers.

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SHERLOCK

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"Sherlock" is a British TV-series running by BBC and based on detective stories "Sherlock Holmes" by Sir Arthur Conan Doyle. The producers of the series are Steven Moffat and Mark Gatiss. "Sherlock" started in 2010 and has 4 seasons, 3 episodes in each. The main characters are Sherlock Holmes, who is played by Benedict Cumberbatch, and his companion and friend Dr. Watson, played by Martin Freeman.

The action of the TV-series takes place in modern-day London. People who have any mysterious accidents happening in their lives are coming to ask for Sherlock Holmes's help. Since he loves complicated cases, he usually agrees to help and solves the problem. During the process of finding the solution he always shows his great intelligence and deductive abilities. The main character also has an elder brother Mycroft who works for government and gives Sherlock complicated cases from time to time. The police also often reach out to Sherlock when they can not solve the case.

Besides many detective adventures Sherlock also has the main enemy with whom he confronts during the whole series. His name is Jim Moriarty, who is played by Andrew Scott. He constantly tries to destroy Sherlock's life.

The TV-series also has several great awards, such as BAFTAs, Emmys, and a Golden Globe's awards. The "Sherlock" series is released in DVD and Blu-ray together with original stories by Conan Doyle. The soundtrack is originally composed by David Arnold and Michael Price.

Sherlock is a very popular TV-series, which is proved by great broadcast ratings in many different countries and has a huge number of followers all over the world especially in America and Russia, and the door on Baker Street 221B is recognized even by people who didn't ever watch this TV-series. It became so popular because of ingenious work of producers and brilliant play of actors.

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FILMINDUSTRIE IN DEUTSCHLAND

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Die Filmgeschichte beginnt in Deutschland bereits 1895, im Geburtsjahr des Films. Als bekannte deutsche Filmpioniere sind die Brüder Skladanowsky, Guido Seeber, Oskar Messter, Max Reinhardt, Ernst Lubitsch zu nennen. Die neuartige Kinematographie war zunächst eine Attraktion für die „höheren Schichten“. Die Ladenbuden, in denen damals der Film gezeigt wurde, hießen im Volksmund einigermäßen verächtlich „Kintopp“. Nach 1910 entstanden die ersten künstlerischen Filme, z. B. „Der Student von Prag“ (1913). Ernst Lubitsch inszenierte zuerst zwei- und dreiaktige Filme und Kammerspiele.

Vor 1914 wurden allerdings auch viele ausländischen Filme importiert, Sprachgrenzen gab es im Stummfilm nicht. Der Wunsch des Publikums nach

weiteren Filmen mit ganz bestimmten Darstellern schuf auch in Deutschland das Phänomen des Filmstars, die Schauspielerin Henny Porten gehörte zu den ersten Stars. Der Wunsch der Zuschauer bestimmte Filme fortzusetzen, regte die Produktion von Filmserien an.

Die Erfindung der Tonfilme trug der Entwicklung der deutschen Filmindustrie bei. Der erste deutsche Tonfilm „Der blaue Engel“ war in der ganzen Welt bekannt und hat Marlene Dietrich einen internationalen Superstar gemacht.

Um 1916 existierten 2000 standfeste Abspielstätten im Deutschen Reich. Bereits 1917 setzte mit der Gründung der UFA die massive und halbstaatliche Konzentration der deutschen Filmindustrie ein. Die Filmindustrie wurde damals auch zu Propagandazwecken genutzt. Das Publikum hatte Unterhaltungsfilme sehr gern und kam in die Kinos, um solche zu sehen. Deswegen wurden die Unterhaltungsfilme gefördert und von der Regierung gut finanziert. Auf diese Weise wuchs die deutsche Filmindustrie zur größten Filmindustrie Europas heran [2].

Die deutsche Filmkunst hat sich ständig entwickelt und hat mit vielen neuen Filmstilen experimentiert. Eine große Wirkung auf die deutsche Filmkunst hat der Expressionismus ausgeübt. Ein beliebtes Filmgenre, das in Deutschland entwickelt wurde, war der Bergfilm. In einem Bergfilm ging es um Bergsteiger, Skifahrende und Lawinen. „Der heilige Berg“ ist ein gutes Beispiel für dieses Filmgenre.

In der ersten Hälfte des 20. Jahrhunderts hatte die deutsche Filmindustrie große Erfolge und hatte neue Genres des Films entwickelt. In der Zeit der Weimarer Republik produzierte die deutsche Filmindustrie Hunderte von Filmen pro Jahr und war ein ernster Konkurrent zu Hollywood.

Die deutsche Filmindustrie ist heute kleiner als im 20. Jahrhundert. Aber die Regierung der BRD versucht, die deutsche Filmindustrie zu stärken. Die deutschen Filmmacher werden gut finanziert. In Deutschland werden viele Filmfeste, zum Beispiel die Berlinale in Berlin, durchgeführt. Es gibt auch erfolgreiche deutsche Schauspieler, wie Til Schweiger.

Trotz der Popularität der amerikanischen Filme in Deutschland entwickelt sich die deutsche Filmindustrie heute zielstrebig. Vielleicht kommt noch die zweite Blütezeit des deutschen Films [1].

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НАЦИОНАЛЬНАЯ КУХНЯ КАНАДЫ
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Национальная кухня Канады «замешана» на кулинарных традициях многих народов мира. Это совсем не удивительно, ведь Канада – страна эмигрантов. Поэтому если вы встретите в ресторанах или местных кафе гамбургер, украинский борщ с пампушками или итальянскую пиццу, удивляться не стоит.

Канадская кухня широко варьируется в зависимости от региона страны. «Канада имеет кухню из кухонь. Это не солянка, но шведский стол» – так говорил бывший премьер-министр Канады Джо Кларк. Первоначальные корни канадской кухни – в традициях коренных североамериканских народов, а также в английской и французской кухне. Поэтому будет правильнее назвать канадскую кухню англо-американо-канадской кухней. Впоследствии местная кухня была дополнена при последующих волнах иммиграции в 18-м и 19-го веке из Центральной, Южной и Восточной Европы, а также из Китая.

Главной составляющей канадской кухни является кухня Квебека, которая основана на французских кулинарных пристрастиях (т. к. рецепты французских кулинаров исторически и географически Канаде ближе) [1, с. 165].

Стоит отметить, что в любом городе Канады вы легко найдете китайские, русские, индийские, украинские, польские, тайские, японские, мексиканские, португальские рестораны и американские закусочные – «фаст фуд». Также, в последние годы, в стране возрождается национальная кухня коренных народов – индейцев (ирокезов, магавков, абенака, микмаков, гуронов, атапаскана, наскапи и других).

Основными продуктами для приготовления национальных блюд канады являются:

- Мясо (свинина, курятина, мясо цыпленка, зайчатина и другие виды),
- Овощи (картофель, помидоры, лук, капуста, тыква) и зелень,
- Рыба (осетр, сельдь, щука, форель, лосось, налим, сиг),
- Зерновые (пшеница, кукуруза),
- Грибы (шампиньоны),
- Молочные продукты (молоко, сыр – козий, коровий, овечий),
- Яйца.

А теперь, перейдем непосредственно к тем блюдам, которые стоит попробовать в этой многонациональной стране.

Жители Канады очень любят мясные и рыбные блюда. Мясные блюда канадской кухни могут выступать в качестве холодных закусок, например,

буженина, ветчина, или подаваться как основные горячие блюда, иногда даже без гарниров. Канадцы, как английские, так и французские, – одна из самых мясных наций в мире.

Поскольку мясо является самым популярным и доступным ингредиентом для канадских кулинаров, разнообразие и количество блюд, в которых оно встречается, способно поразить любое воображение. Также велик ассортимент блюд из рыбы, которые канадцы научились готовить в совершенстве в любом виде. Традиционными блюдами канадской кухни можно считать:

- Мясные блюда, среди которых наибольшей популярностью пользуются ростбиф, бифштекс, отварная или вяленая оленина, жареный на вертеле цыпленок, мясной пироги многие другие. Иногда единственным дополнением к мясному блюду берется только соль и приправы, хотя бобы считаются традиционным гарниром.

- Рыбные блюда – особенно осетрина и сельдь, рецептов приготовления которой канадцы придумали великое множество, но наибольшей популярностью пользуется все-таки копченая рыба.

- Туртьер – мясной канадский пирог, который зародился в Квебеке более 400 лет назад. Зачастую в рецепте используется свинина или говядина, но иногда канадцы предпочитают дичь.

- Routine – необычное по своему внешнему виду и вкусу блюдо, в основе которого картофель фри и творог, залитые особым соусом.

Не последнее место, в кухне Канады, занимают первые блюда – супы, супы-пюре, бульоны.

Еще одна гордость, национальной кухни Канады – кленовый сироп. Метод добычи кленового сока был позаимствован у коренных жителей – индейцев. Только в северной части американского континента растет, особый, сахарный клен, из которого добывают сок, ранней весной.

Для получения 1 литра сиропа, необходимо 40 литров кленового сока. 75% всего производимого сока, приходится на канадскую провинцию – Квебек. Почти все сладкие блюда и десерты, канадской кухни, не обходятся без применения кленового сиропа. Его добавляют в булочки, кексы, пироги, блинчики, вафли, мороженное, каши и просто мажут на корочку хлеба. Кленовый сироп – это лучший сувенир, который необходимо привезти из Канады [2, с. 305].

Из безалкогольных напитков канадцы предпочитают кофе, кефир, питьевой йогурт, минеральную воду, спрайт, кока-колу, фанту... А из алкогольных, самый любимый и основной напиток – пиво. В каждой провинции есть свои сорта пива, пользующиеся популярностью у местного населения и туристов. Отменным качеством отличаются такие сорта как: «Молсон», «Лабатт», «Александр Кейтс», «Масхед», «Сент-Амбруаз» и другие.

Если вы решили отправиться в Канаду за вкусной едой и лучшими ресторанами, то отправляйтесь в Торонто. По мнению кулинарных экспертов именно там находится 6 из первых десяти лучших заведений общественного питания страны.

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ОЛИМПИАДА В ЛОНДОНЕ 2012

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Летние Олимпийские игры 2012 (XXX летние Олимпийские игры) – тридцатые по счету летние Олимпийские игры. Они проходили в Лондоне, столице Великобритании, с 27 июля по 12 августа 2012 года. Лондон – первый город, принимавший Игры третий раз (до этого они проходили там в 1908 и 1948 годах).

Эмблема

Официальная эмблема летних Олимпийских игр 2012 состоит из четырех частей в виде неправильных многоугольников, которые символизируют цифры года Олимпиады – «2», «0», «1», «2». В одну из частей включено слово «London», а в другую – изображение олимпийских колец. Логотип разрабатывался больше года и его разработка обошлась в 400 тысяч фунтов стерлингов.

Логотип Олимпиады сумел вызвать международный скандал. Когда эмблема была представлена широкой публике, Иран заявил, что фигуры, которые должны обозначать цифры 2012, на самом деле – пазл, который легко складывается в слово «Zion» (т.е. «Сион») и был намерен бойкотировать Олимпиаду в Лондоне. Иран не единственная страна, у кого этот логотип вызвал недоумение. Многоцветную эмблему, разработка которой, по официальным данным, обошлась в 650 тысяч долларов, не раз называли уродством и пустой тратой денег. Официальный шрифт, разработанный на основе логотипа, был включен в ряд рейтингов худших шрифтов в мире.

Талисманы

По легенде авторов, Талисманы Игр – две капли стали из Болтона по имени Венлок и Мандевиль, названные в честь города Мач-Венлок, в которых прошли первые соревнования наподобие Олимпийских игр, и деревни Сток-Мандевиль, где прошли первые на территории Великобритании Паралимпийские игры. Оба талисмана одноглазые, носят велосипедные шлемы и на них изображены логотипы Игр.

Медали

Диаметр одной медали составил около 85 миллиметров и 7 миллиметров в толщину. Вес одной награды – порядка 375–400 грамм. Таким образом, медали летней Олимпиады 2012 стали самыми большими в истории Игр. Всего к Олимпиаде было изготовлено более 2100 медалей. На наградах различного достоинства находился логотип Игр с лучами. На обратной стороне медали была изображена богиня побед Ника и река Темза. Медали спроектировал британский дизайнер Дэвид Уоткинс.

Подготовка к Играм

Большинство спортивных объектов размещалось в столице Великобритании в трех зонах.

- В специально выстроенном олимпийском парке располагался стадион, где проходили церемонии открытия и закрытия Игр, две олимпийские деревни, аквацентр для соревнований пловцов, прыгунов в воду и участниц состязаний по синхронному плаванию, велопарк, арены для соревнований по баскетболу, гандболу и хоккею на траве, а также соревнования по легкой атлетике. После завершения Олимпиады он стал домашней ареной футбольного клуба «Вест Хэм».

- Вторая зона получила название речной, располагаемая вдоль Темзы. В нее вошли выставочный центр, где проходили соревнования по боксу, всем видам борьбы, тяжелой атлетике, фехтованию и настольному теннису.

- Третья зона носит название центральной и включает в себя популярные арены, например, стадион Уэмбли и Всеанглийский клуб лаун-тенниса и крокета, более известный как Уимблдон.

За пределами Большого Лондона проходили соревнования гребцов и парусников. Матчи футбольного турнира кроме Лондона проводились еще в шести городах – Глазго, Кардиффе, Манчестере, Бирмингеме, Ньюкасле и Ковентри.

Церемония открытия

Церемония открытия состоялась 27 июля на новом, специально сооруженном к играм, 80-тысячном Олимпийском стадионе и носила название «Острова чудес», режиссером – Дэнни Бойл.

Театрализованной частью церемонии стала своего рода иллюстрированная история Великобритании. В чаше стадиона устроили огромную лужайку с волшебным деревом, вокруг которого все и происходило – десять тысяч актеров, репетировавших в течение трех месяцев, показали борьбу средневековых традиций и древнего уклада английской жизни и сил модернизации – промышленников. Могучее дерево в итоге вырвали с корнем, и на стадионе возникали заводские

трубы. Перед сотней камер, установленных на арене и транслирующих происходящее на четыре огромных экрана, проходили актеры – солдаты британской армии, актрисы–суффражистки – ход истории ускорился, а с ним набирала темп и постановка.

Официально открыть Игры может только королева **Елизавета II**. На экранах показали, как в Букингемский дворец въехал обыкновенный кэб, из которого выходит **Дэниел Крэйг** – агент 007, Джеймс Бонд. Именно ему выпала честь пригласить на Олимпиаду монаршую особу. И королева, и Джеймс Бонд летели к стадиону на вертолете, после чего они оба выпрыгнули с парашютами прямо на арену. Конечно же, роль правительницы Великобритании в небе Лондона исполнял каскадер. Сама Елизавета вышла вместе с супругом, принцем **Филиппом**, герцогом Эдинбургским, из королевской ложи, чтобы торжественно благословить поднятие государственного флага под знаменитый на весь мир гимн «God save the Queen».

Затем начался традиционный парад представителей всех 205 стран, участвующих в Играх. Флаги несли звезды, а маленькие делегации маленьких стран радовали колоритом костюмов и оригинальностью поведения. После парада королева объявила Олимпийские игры 2012 года открытыми. После речи был поднят олимпийский флаг, который вынесли знаменитые чемпионы прошлого.

Олимпийский огонь, символ любых церемоний открытия Игр, проделал огромный путь от горы Олимп до Лондона, обойдя весь мир и даже космос. Доставлял огонь на арену бывший капитан сборной Англии **Дэвид Бекхэм** на катере по Темзе. Факел Дэвид передал **Стивену Редгрейву**, прославленному британскому гребцу, обладателю золотых медалей на пяти подряд Олимпийских играх. Редгрейв доставил огонь до стадиона и передал пламя «семерым смелым» – молодым атлетам, которых выбрали британские олимпийские чемпионы. После зажжения огня стадион озарил масштабный фейерверк.

Церемония закрытия

Торжественная церемония закрытия XXX летних Олимпийских игр под названием «Симфония британской музыки» состоялась в Лондоне 12 августа на главной арене спортивных состязаний, посвященное великому британскому музыкальному наследию, которым наслаждаются люди во всех уголках мира. Во время шоу прозвучало большое количество британских хитов, записанных за последние 50 лет. В шоу приняли участие 3500 волонтеров. Постановщиком церемонии выступил **Ким Гэвин**, один из известнейших британских хореографов. Эстрадная часть плавно перетекала в парад участников Олимпиады, который традиционно возглавила Греция, как родоначальница игр. После братания спортсменов, вручения последних олимпийских медалей и награждения волонтеров,

музыкальная часть продолжилась, а вскоре мэр Лондона **Борис Джонсон** передал Олимпийский флаг в руки **Жаку Рогге**, а тот – **Эдуардо Паесу**, мэру Рио-де-Жанейро, где проходили Игры в 2016 году. Бразилия официально переняла олимпийскую эстафету.

Завершало вечер выступление **Take That** с хитом Rule the World, птица Феникс над олимпийским огнем и полет балерины с крыльями за спиной. Лондон попрощался с Олимпиадой, огонь погас. Торжественную церемонию закрытия XXX Олимпийских игр в Лондоне завершили легендарная британская музыкальная группа **The Who** и грандиозный салют.

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WEDDING TRADITIONS IN DIFFERENT COUNTRIES

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A wedding is the ceremony in which two people are united in marriage or a similar institution. Wedding traditions and customs vary greatly between cultures, ethnic groups, religions, countries, and social classes. Most wedding ceremonies involve an exchange of wedding vows by the couple, presentation of a gift (offering, rings, symbolic item, flowers, money), and a public proclamation of marriage by an authority figure or leader. Special wedding garments are often worn, and the ceremony is followed by a wedding reception. Music, poetry, prayers or readings from Scripture or literature also may be incorporated into the ceremony.

As for weddings, they are one of the most universal traditions, but every culture celebrates them a little differently.

First of all it is important to say that a number of cultures have adopted the traditional Western custom of the white wedding, in which a bride wears a white dress and veil. This tradition was popularized through the wedding of Queen Victoria. Some say Victoria's choice of a white gown may have simply been a sign of extravagance, but may have also been influenced by the values she held which emphasized sexual purity.

Within the modern white wedding tradition, a white dress and veil are unusual choices for a woman's second or subsequent wedding. The notion that a white gown might symbolize sexual purity has been long abandoned, and is criticized by etiquette writers like Judith Martin as distasteful.

The use of a wedding ring has long been part of religious weddings in Europe and America, but the origin of the tradition is unclear. Historians like Vicky Howard point out that belief in the "ancient" quality of the practice are most likely a modern invention.

The wedding is often followed by a reception, in which the rituals may include toasting the newlyweds, their first dance as spouses, and the cutting of a wedding cake.

Wedding Traditions in Great Britain

There's no place in the world quite as famous for its culture as the island kingdom of Great Britain. With over two thousand years of culture from which to draw, the nation and its people celebrate weddings with a uniquely elegant sense of poise and class. Weddings in Great Britain are very beautiful and unforgettable because of the old customs of British people that have been forming since very ancient times.

The traditional ceremony begins with a flower girl strewing daisies along the path to the church, followed in close succession by the bride accompanied by her bridesmaids. The bridesmaids wear dresses very similar to the brides, a tradition that dates to the country's roots as a far province of the Roman Empire. In those days, robbers and highwayman often abducted a bride as she made her way to the church; bridesmaids dressed as brides were meant to ward off the wrongdoers. The tradition exists today to confuse anyone who might wish the wedding ill.

In a wedding ceremony in the Church of England, the bride is given to the groom by the father of the bride in the priest's presence. The people inside the church will be asked by the priest if anyone objects the wedding. In case somebody does, the objections are permitted to speak. Both the groom and the bride have an opportunity to reconsider. Then they vow to be devoted, love, honor and protect one another till the end of their lifetime.

The rite includes putting the wedding ring by the groom on the bride's finger. It is the third finger on her left hand. When the ring is accepted by the bride, the priest affirms them to be a husband and a wife. The wedding is blessed by the priest and God. After that the man is permitted to kiss the bride.

The couple is allowed to get married in a registry office in case they wish to do this. The rite will be then brief and simple. The couple faces a registrar in charge and they put signs in the register. Two witnesses should attend at this ceremony.

Proper English brides sometimes sew "a good luck charm", such as a silver horseshoe, onto the hem of their dresses. Brides might also carry a horseshoe

with their bouquet for additional good luck. It is also a good luck when a chimneysweep kisses the bride when she leaves the church. Rain is also considered an omen of good luck if wedding ceremony is in the morning.

There is typically no rehearsal dinner, but brides do hold a “hen party” the night before, while the groom’s friends will cheer his good luck at a “stag party” at the same time. Invitations are much the same as they are in the United States, though for church weddings a formal announcement called a bann is read three Sundays before the ceremony.

On the wedding day, the ceremony is held promptly at noon. Brides and grooms recite their vows under the doorway to the chapel, so that anyone who might want to see the wedding can watch it take place.

After the ceremony, the guests accompany the new couple to a “wedding breakfast” that includes two different kinds of cake. In place of a traditional wedding cake, an English reception features an elaborate fruitcake made from cherries, ground nuts, and other sweet ingredients. The top layer of the fruitcake is sometimes called the “christening cake” and is set aside to celebrate the christening of the couple's first child. The groom’s cake is usually chocolate and traces its origins to the splendor of the Tudor period.

Wedding Traditions in Italy

On her wedding day, the bride is expected to wear a garter. This is a tradition that dates back to the 14th century, when it was thought that owning a piece of the bridal trousseau would bring luck. After the ceremony, the bride would remove the garter and it would be torn into pieces for the guests to keep. In some Italian regions, it is the groom's job to remove and throw it to his guests; if, unfortunately, the bride is found not to wearing a garter, her right shoe is then removed and thrown.

The tradition of ‘the groom can’t see the bride’ on the wedding day is practiced all over the world, however, in certain Italian regions even the bride can’t look at herself. It is considered bad luck if she sees herself in the mirror before she is dressed in her bridal finery and then only after she’s removed a glove or a shoe.

Traditionally to bring good luck, the bride would spend the night before her wedding with her parents at their home. In some regions of Italy, it is also considered to bring ill-luck to the couple’s joining if the bride wears any gold jewellery on her wedding day other than her wedding ring.

In Italy, traditionally, it is the groom’s job to supply the bridal bouquet. This is considered to be his final gift to his girlfriend before she becomes his wife. The bride may choose the floral arrangement she wants, but it is the groom who must pay the bill and make sure it is delivered to his intended.

In some Northern provinces, the groom must wait with the bouquet outside the church for his bride to arrive and hand it to her before taking his place in readiness for the marriage.

Speaking about the dress, everyone expects to see a bride in white; however, it hasn't always been the colour of choice. In Tuscany, for example, a traditional bride would wear a black dress with a white hat. In Venice, it was the custom for the bride to walk to church wearing her second-best wedding dress; her much finer bridal gown being saved for after the church ceremony for her first dance as a wife.

The bridal veil dates back to ancient Rome when marriages were arranged by the family. To prevent the bride and groom from seeing each other before they married and running the risk that one of them may not go ahead with the proposed union, the bride's face would be completely covered.

In southern Italy, traditionally, the veil should be as long as the young couple's love for each other, usually one-meter in length for each year they have been engaged.

Even the day you choose to marry must be considered carefully. Sunday is still considered the best day to marry for luck, fertility and prosperity.

Following the wedding, in some regions, the bride and groom would break a glass vase and the fragments would be counted, the amount of broken pieces would indicate the amount of happy years ahead.

Traditional Russian Wedding

Russian weddings are celebrated on a grand scale and may last for at least two days and some weddings last as long as a week. Throughout the celebration there is dancing, singing, long toasts, and a lot of food and drinks. The best man and maid of honor are called witnesses. The ceremony and the ring exchange takes place on the first day of the wedding. Russian weddings have adopted some of western traditions, including bridesmaids and others.

Let's begin at the beginning. The wedding is usually planned soon, within 1-3 months. The time depends on the department of registrations (ZAGS – department of registration of civil statuses that is also responsible for registrations of births and deaths, divorces etc). The couple is supposed to apply in writing to the department of registrations asking to register their marriage. The department will give them available dates (when the registrar is available), but according to the law there must be at least 1 month of waiting period. During Soviet time this period was 3 months, so the two had time to cool down.

After the couple has applied to the department of registration, they are considered as being a bride and a groom; but Russians do not talk about being engaged, they say "They handed in the application".

A bride's wedding dress is traditionally white. Before the Catherine II's wedding, bridal dresses in Russia were red. Now, a white wedding dress in Russia is a symbol of purity and chastity. But the white color was taken from ancient Greece: there it was a symbol of joy and prosperity. Queen Catherine married in a white dress, and it was the moment the Russian tradition totally changed.

Like in any other country, a wedding day begins with hair setting, applying makeup and dressing. It happens in all different ways: the bride can do hair and makeup in a beauty salon with a trained hairdresser and makeup artist, or in her own room with available tools.

Once the groom arrives at the bride's home, he must pay a ransom for the bride. The entire event is played out in a comical fashion and everyone is entertained. At first the groom comes and gives something (often money or jewelry) for the bride, and so the parents of the bride bring out a woman or man (the latter for amusement) that is not the actual bride, but is dressed up like one, covered in a veil, so the groom can't see their face. When the groom realizes that it is not his bride, he asks for his love, but the family of the bride will demand a bigger ransom to be paid. So, upon satisfaction with the ransom given, the bride's family gives away the bride to the groom.

One more tradition is that of sharing a wedding loaf was borrowed from the ancient Romans. In addition to being a symbol of health and prosperity, karavay is also a way to find out who will be the head of the family. This is done by having the newlyweds each take a bit, without using their hands. Whoever takes the largest bite is considered to be the head of family. This tradition can be coupled with a champagne toast and the subsequent breaking of the glasses, which is considered good luck.

Two crossed golden rings is a Russian symbol of marriage that may be also seen on wedding invitations etc.

Finally, it is necessary to say that in spite of the fact that wedding traditions and customs vary greatly between cultures, ethnic groups, religions, countries, and social classes, they have one important feature – it is the foundation of the family which in turn is the cornerstone of society and carries universal importance.

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THE REPUBLIC OF THE PHILIPPINES

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The Philippines is a sovereign island country in Southeast Asia situated in the western Pacific Ocean at the very eastern edge of Asia. Many wonderful beaches are just part of one of the world's longest coastlines and it takes about 20 years to spend a day on every island. Since Spanish colonial times, the country has been Asia's largest Catholic country. Over a hundred ethnic groups, a mixture of foreign influences and a fusion of culture and arts have enhanced the uniqueness of the Filipino identity and the wonder that is the Philippines.

It consists of about 7,641 islands that are categorized broadly under three main geographical divisions from north to south: Luzon, Visayas, and Mindanao. The capital city of the Philippines is Manila. Bounded by the South China Sea on the west, the Philippine Sea on the east and the Celebes Sea on the southwest, the Philippines shares maritime borders with Taiwan to the north, Vietnam to the west, Palau to the east and Malaysia and Indonesia to the south.

The arrival of Ferdinand Magellan in Homonhon, Eastern Samar in 1521 marked the beginning of Hispanic colonization. In 1543, Spanish explorer Ruy López de Villalobos named the archipelago *Las Islas Filipinas* in honor of Philip II of Spain.

The Philippines has a democratic government in the form of a constitutional republic with a presidential system. The President functions as both head of state and head of government and is the commander-in-chief of the armed forces. The president is elected by popular vote for a single six-year term, during which he or she appoints and presides over the cabinet.

The Philippines' 36,289 kilometers (22,549 mi) of coastline makes it the country with the 5th longest coastline in the world. Philippines nature attractions are a chief reason why tourists will fly from all over the world to this archipelagic country to see nature at its best. In a country whose diverse beauty is a primary attraction, it becomes important to establish the type of location you would like to visit. This is because with more than seven thousand interconnected islands, it is obvious there is a wide variety of natural attractions. Moreover, the beautiful and untouched environment and topography created an impression of the archipelago's virginity. As of the present, the Philippines is still surrounded by different natural resources that capture the tourists all over the world.

According to the official count the population of the Philippines hit 100 million. *Ethnologue* lists 186 individual languages in the Philippines, 182 of which are living languages, while 4 no longer have any known speakers.

Filipino and English are the official languages of the country. Both Filipino and English are used in government, education, print, broadcast media, and business. The Philippines is an officially secular state, although Christianity is the dominant faith. Islam is the second largest religion. An unknown number of Filipinos are irreligious.

The Philippines is a country that has varied cultural influences. Most of these influences are results of previous colonization, deriving mainly from the culture of Spain and the United States. Despite all of these influences, the old Asian culture of Filipinos has been retained and are clearly seen in their way of life, beliefs and customs. Wherever you go, Filipino culture is very evident and has largely been appreciated and even applauded in many parts of the world.

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5 ноября в Великобритании и всех ее бывших колониях отмечается Ночь Гая Фокса. Этот традиционный праздник также называют Ночью Костров и Фейерверков, поскольку в этот день улицы городов наполняются тысячами огней, а небо разрывают сотни петард.

Гай Фокс, наверное, единственный преступник в мире, с именем которого связан праздник, отмечаемый практически всей страной. Причем связан этот день не с жизнью Гая Фокса, а с одним из дней в его биографии. Этот день пришелся на 5 ноября, когда несколько заговорщиков планировали взорвать Парламент Великобритании во время выступления короля Якова I. Католики возлагали большие надежды на короля, полагая, что он отменит штрафы и ограничения, наложенные на католиков при королеве Елизавете I, но их надежды не оправдались. Тогда группа заговорщиков решила на экстренный шаг, который вошел в историю как «Пороховой Заговор». Роберт Кейтсби предложил взорвать здание Парламента во время ежегодной церемонии открытия заседания Палаты Лордов.

Целью предполагаемого взрыва было убийство короля, смена власти в стране и воцарение на престоле короля-католика. Для осуществления подрыва ими было приобретено 36 бочек с порохом и складировано в подвале под Палатой Лордов.

Но заговор был неожиданно сорван. Накануне запланированного взрыва один из участников послал своему другу лорду Монтиглу письмо, в котором он просил его не посещать Парламент 5 ноября. Несколькими

часами позже письмо оказалось в руках самого короля. Яков I приказал обыскать подвалы Парламента, где были обнаружены 36 бочек с порохом и Гай Фокс, намеревавшийся с минуты на минуту поджечь фитиль, ведущий к наполненному порохом подвалу под Палатой Лордов.

После нечеловеческих пыток и издевательств Гай Фокс выдал все имена злоумышленников. Все заговорщики были публично казнены, а Гай Фокс четвертован. Лондонцы в благодарность за избавление короля от смерти стали жечь на улицах костры. Со временем эта традиция переросла в более грандиозное событие, и на кострах стали сжигать чучело Гая Фокса, символы «Порохового Заговора», к тому же она была дополнена фейерверками и взрывающимися петардами.

Эта же традиция с повсеместными кострами, дополненная фейерверками и взрывающимися петардами, дошла и до нашего времени.

Каждый школьник в Англии знает детский стишок «Remember, remember the fifth of November», что в переводе означает «Помним, помним не зря пятый день ноября».

Ночь Гая Фокса не считается государственным праздником, но до 1959 года все жители Великобритании должны были принимать участие в праздновании этого дня. Сейчас религиозная составляющая этого праздника ушла в прошлое, а день Гая Фокса часто называют Днем фейерверков или Днем костров. Считается, что фейерверки в Англии обрели популярность только благодаря этому празднику.

Уснуть в эту ночь не удастся никому, поэтому улицы полны народу. Каждый уважающий себя англичанин в ночь Гая Фокса запускает в небо петарды или фейерверки, возит тележки с костром, сжигает специально сделанное чучело Гая Фокса или просто поддерживает других криками и аплодисментами. Стоит сказать, что праздник не ограничивается одним днем. Задолго до ночи Гая Фокса люди начинают «репетировать» взрывы и фейерверки. В ближайшие к 5 ноября выходные в парках проводят костюмированные представления и мероприятия для всех членов семьи.

Также день Гая Фокса отмечают и в нескольких бывших колониях Великобритании – в Австралии, Южной Африке, Новой Зеландии, в некоторых провинциях Канады.

Кроме веселой и шумной традиции празднования, сохранилась и еще одна традиция, связанная с днем Гая Фокса. Перед началом каждой сессии парламента теперь проводят особую церемонию осмотра всех подвальных помещений здания.

Шутливой традицией в Англии, связанной с 5 ноября, считается приготовление печенья, когда в одно из них кладут острый порошок чили. Тот, кому достанется именно это печенье, получит незабываемый фейерверк еще и во рту.

В Англии на «Bonfire Night» (Ночь Костров) принято приглашать гостей на праздничный ужин, где гвоздем программы является сжигание чучела Гая Фокса. Все гости выходят на участок, запускают петарды, поджигают чучело, жгут костер и мило общаются друг с другом.

Традиционно на 5 ноября готовят картофельное пюре с толстыми английскими сосисками, обжаренными на гриле, а в углях запекают картофель и едят его со щепоткой соли. Существует и другое кушанье на День Гая Фокса – куриные ножки барбекю вприкуску с капустно-морковным салатом «coleslaw», заправленным майонезом, а на десерт яблоки-тоффи с сиропом, из которого делают ириски. Дети разукрашивают лицо углем «для камуфляжа» и счастливо бегают вокруг костра, не подозревая о настоящем предназначении этого праздника.

Большое распространение получила маска Гая Фокса, которая известна всем, кто смотрел фантастический фильм «“V” значит Вендетта». Ее также называют маской Анонимуса или маской Вендетта. Создатель образа этой маски – художник Дэвид Ллойд. У молодежи в разных странах эта маска символизирует протест против тирании, коррупции и огромных корпораций.

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POPULAR INDIVIDUAL SPORTS IN THE UNITED KINGDOM

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Sport is one of the most amusing things in the world, because of the different feelings that we experience, when we watch the game. Sport plays important part in people's life in Britain. For most British, sport is their main form of entertainment. The most popular individual sports in Britain are motorsport, tennis and golf.

Britain is the centre of Formula One. The United Kingdom hosted the very first F1 Grand Prix in 1950 at Silverstone, which is held each year in July. Britain also hosts legs of the World Rally Championship and has its own touring car racing championship. British drivers have achieved success in the World Rally Championship with the Colin McRae and the Richard Burns winning the title. Derek Bell is a one-time winner of the 1000 km Silverstone, the major endurance race of the country and five-time 24 Hours of Le Mans winner.

Tennis was originally called “sphairistike”! The most popular tennis tournament in Britain is Wimbledon. It originated in the nineteenth century in a small club in south London. The first tournament was held in the London suburb of Wimbledon in 1877. Now people all over the world know Wimbledon as the centre of lawn tennis. It attracts not only tourists, but also sports lovers and sports critics from all around the world. Millions of people watch the Championships on TV live. It is traditional for visitors to eat strawberries and cream whilst they watch the tennis.

Modern competitive golf originated in Scotland. In the early 20th century British golfers were the best in the world, winning nearly all of the US Open championships. The Open Championship is the only men's major golf tournament which is played outside of the United States. The most famous Golf Club is St Andrews, which is known as "The Home of Golf", but the world's oldest golf course is Musselburgh Links.

Sport is a very interesting theme concerning the United Kingdom. Sport plays such an important part in British life that many idioms in the English language have come from the world of sport. For example, “to play the game” means “do be fair”, and “that’s not cricket” means “that’s not fair”. The British are proud that many sports originated from their country and then spread throughout the world.

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Король Артур – величайший британский литературный герой. Однако, крайне мало известно о реальном человеке, ставшим прототипом этого героя. До наших времен сохранились лишь немногочисленные тексты, хроники, стихи и мифы. И хотя эти произведения и могут быть

очень интересны для прочтения, они не дают ответа на вопрос о реальной личности короля Артура, и существовал ли он вообще.

История Артура, по меньшей мере, туманна, а письменные записи далеко не всегда точны.

Одна очень хорошо известная история, написанная неизвестным автором в восьмом веке, называет Артуром героя битвы при Бадонском холме. Другая история говорит об Артуре две вещи: он сражался в битве при Бадоне, и был убит при Камланне в той же битве. Другой анонимный автор, написавший произведение «История Британцев», рассказывал не только о сражениях Артура, но и о других его достижениях.

«История королей Британии», написанная Джеффри Монмутским в 1136 году, стала одной из величайших средневековых книг. Истории об Артуре переходили из уст в уста, пока он не записал все истории в своем труде, который стал одним из первых письменных упоминаний об Артуре.

По средневековым стандартам работа Джеффри считалась неким бестселлером. На ней были основаны несколько других произведений, некоторые из которых сохранились и до наших дней.

Артуровская литература радикально изменилась в Средние века, когда главный акцент стали делать на Гвиневре и рыцарях Круглого стола, а сам Артур стал ассоциироваться с магией и чем-то сверхъестественным.

К тому же, в кельтских текстах и английских работах, за исключением хроник, Артур представляется нам не как великий воин. Крупномасштабные войны забываются, и Артур становится мудрым, щедрым персонажем, а не военачальником прошлого. Он становится идеальным героем и предстает перед нами как избранник богов. История о Мече и Камне, основанная на мифе викингов о Мече Волсунгов, показывает нам Артура, как правителя, посланного богами.

Наиболее известным произведением об Артуре является книга «Смерть Артура», написанная Томасом Мэлори. Он был рыцарем, который любил охоту, турниры, и читал романы об Артуре. «Смерть Артура» была завершена в 1469 году. Она стала сочетанием почти всех манускриптов об Артуре и литературного гения автора.

И все же настоящий Артур, хотя мы, возможно, никогда не узнаем, кем он был на самом деле, является важной частью истории, ну и конечно же, литературы. Нельзя себе представить, как Артур забывается в литературе, ведь его история одна из самых величайших, хотя и в то же время одна из самых непонятных.

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SEHENSWÜRDIGKEITEN DER STADT BERLIN

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In der deutschen Hauptstadt Berlin gibt es viele Sehenswürdigkeiten.

Die bekannteste und beliebteste Sehenswürdigkeit der deutschen Hauptstadt ist das Brandenburger Tor. Es befindet sich am Pariser Platz im historischen Stadtviertel Dorotheenstadt. Das Brandenburger Tor wurde in den Jahren von 1788 bis 1791 erbaut. Nach dem Zweiten Weltkrieg bis zur Wiedervereinigung der DDR und der BRD markierte das Brandenburger Tor die Grenze zwischen Ost- und Westberlin und stellte hiermit eine Teilung zwischen den zu der Warschauer-Vertragsorganisation gehörenden Staaten und den Nordatlantikvertrag-Staaten dar. Nach einer Umfrage der Deutschen Zentrale für Tourismus gehört das Brandenburger Tor in Berlin zu den beliebtesten Sehenswürdigkeiten des Reiselandes Deutschland [1].

Der Reichstag steht in der Mitte von Berlin. Hier waren schon die Abgeordneten im deutschen Kaiserreich und auch danach das Parlament von der Weimarer Republik beheimatet. Der Reichstag ist der Sitz der heutigen deutschen Bundesregierung. Das gigantischste am Gebäude ist die riesige Kuppel, die oben auf dem Prachtbau sitzt. Von der Dachterrasse und der Kuppel des Reichstages bietet sich ein einzigartiger Panoramablick über das benachbarte Regierungsviertel am Spreebogen.

Eine der bekanntesten Straßen Berlins ist „Unter den Linden“. Ihre prachtvolle Bauweise ist auch in ganz Europa einzigartig. Ihre Wegführung geht vom Pariser Platz bis hin zur Schlossbrücke. Über diese kann zur Museumsinsel und zum Fernsehturm gelangt werden. Ihren Ursprung hat „Unter den Linden“ bereits im 16. Jahrhundert, wo es aber lediglich ein Reitweg war und keine Straße im heutigen Sinne. Im Zweiten Weltkrieg wurde die Straße völlig vernichtet. Ab dem Ende der 50er Jahre wurden die Prachtbauten und auch die Straße „Unter den Linden“ wieder aufgebaut. In dieser Straße befinden sich bekannte Bauwerke, darunter die Humboldt-Universität, die Staatsbibliothek zu Berlin, das Hotel Adlon, die Staatsoper und mehrere Museen.

Der Kurfürstendamm (Ku'damm) ist eine dreieinhalb Kilometer lange so genannte Magistrale. Er hat eine noch längere Vergangenheit als andere Sehenswürdigkeiten der Hauptstadt. Der Kurfürstendamm wurde schon im Jahre 1542 gebaut. Seinen ursprünglichen Nutzen hatte er als Dammweg. Auf ihm sollten Kurfürsten vom Stadtschloss in Berlin zum Grünwalder Jagdschloss gelangen können. Schon vor dem ersten Weltkrieg wurde aus einem Weg eine prachtvolle „Meile“, auf der eingekauft werden konnte. Der heutige Kurfürstendamm ist eine weltbekannte Boulevard sowie eine exklusive

Einkaufsmeile in Berlin. Am Kurfürstendamm liegt die berühmte Kaiser-Wilhelm-Gedächtniskirche.

Das höchste Bauwerk in der Stadt Berlin und von ganz Deutschland ist der Berliner Fernsehturm. Er erreicht mit Einbeziehung der Spitze eine Höhe von 368 m. Der Berliner Fernsehturm mit seiner Höhe zählt auch zu den vier höchsten Gebäuden in ganz Europa. Der Berliner Fernsehturm wurde kurz vor dem zwanzigsten Geburtstag der DDR im Jahr 1969 eingeweiht.

In unmittelbare Nähe des Fernsehturms befindet sich der Alexanderplatz. Am Alexanderplatz steht das Rathaus. Das Rathaus ist mit seiner markanten Fassade eines der Wahrzeichen der Hauptstadt. Das Rathaus nennt man „Rotes Rathaus“, weil es aus roten Ziegelsteinen gebaut ist. Zwischen 1861 und 1869 wurde das Rote Rathaus nach den Entwürfen von Hermann Wäsemann gebaut. Ein 74 Meter hoher Turm krönt das Backstein-Ensemble des Gebäudes. Im Zweiten Weltkrieg wurde das Rathaus stark beschädigt, aber bereits in den unmittelbaren Nachkriegsjahren rekonstruiert. Seit 1991 dient das Rote Rathaus wieder als der Regierungssitz, in dem heute auch der Regierende Bürgermeister arbeitet.

Der Zoologischer Garten (Zoo Berlin) liegt im Tiergarten, in Laufentfernung vom Ku'Damm. Der Berliner Zoo wurde 1844 eröffnet. Dem Zoologischen Garten angeschlossen ist das Berliner Aquarium mit Fischen, Reptilien und Amphibien. Das Berliner Aquarium wurde 1913 eröffnet. Mit 35 Hektar und 17000 Tieren zählt der Berliner Zoo zu den größten Zoos in der Welt.

Es lohnt sich, Berlin zu besuchen, weil diese Stadt eine der schönsten Städte in der ganzen Welt ist.

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TOURISMUS IN DEUTSCHLAND

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Deutschland ist ein Land in der Mitte Europas, mit sehr entwickelten Wirtschaft und Infrastruktur. Dieses wunderbare Land kann stolz sein an das herrliche Klima, die freundlichen Bewohner und die super Küche. Jährlich zieht Deutschland Millionen von Touristen aus verschiedenen Orten der Welt. Deutschland ist unter den drei am meisten besuchten Ländern der Welt. Deutschland ist reich an architektonischen und historischen Denkmälern,

verschiedenen Sehenswürdigkeiten und Resorts. Hier können die Touristen die weiten Wälder, schöne Parks und Berge betrachten. Im Staatshaushalt des Landes spielt der Tourismus eine wichtige Rolle.

Mit einem Anteil von 4,7 Prozent am BIP ist der Tourismus in Deutschland heute ein wichtiger Wirtschaftssektor, besonders in industriell schwach entwickelten Regionen. Besonders profitieren der Gaststätten- und Beherbergungssektor, der Personenverkehr, Dienstleister und Anbieter von Freizeit- und Unterhaltungsangeboten sowie Reisebüros und Reiseveranstalter.

Der Tourismus in Deutschland umfasst zwei Bereiche: erstens, den Tourismus, der in Deutschland stattfindet; zweitens den von Deutschen generierten Tourismus.

Deutschland als Urlaubsziel verfügt über günstige Voraussetzungen: Gebirgslandschaften (Alpen und Mittelgebirge), See- und Flusslandschaften, die Küsten und Inseln der Nord- und Ostsee, zahlreiche Kulturdenkmäler und eine Vielzahl geschichtsträchtiger Städte sowie eine gut ausgebaute Infrastruktur.

Vorteilhaft ist auch die zentrale Lage in Europa. Deutschland ist mit über 30 Millionen Übernachtungsgästen im Jahr eines der meistbesuchten Länder der Welt.

Großartige Bergpanoramen, faszinierende Mittelgebirge und weite Küstenlandschaften, naturbelassene Schutzgebiete und pulsierende Metropolen, historische Bauten, kulturelle Institutionen von Weltrang und hochkarätige Veranstaltungen ziehen Jahr für Jahr mehr Gäste aus aller Welt nach Deutschland.

Deutschland liegt im Herzen Europas und ist ein ideales Reiseziel für jede Art von Urlaub. In Deutschland stehen den Touristen Aktiv-, Städte-, Kultur- oder Bildungsurlaub zur Verfügung. Dank der vielfältigen Regionen ist es für jeden Geschmack etwas dabei.

In Deutschland gibt es unzählig viele spannende Urlaubsziele und -regionen. Zu den beliebtesten Regionen zählen Ost- und Nordsee mit ihren traumhaften Stränden. Hier besonders erwähnenswert ist die größte deutsche Ostseeinsel Rügen mit ihren bekannten Kreidefelsen. Charakteristisch für die Ostsee sind zudem Hansestädte wie Lübeck oder Rostock. Der Badetourismus und Wassersport sind an Küsten und Inseln der Nord- und Ostsee von großer Bedeutung, vor allem in den deutschen Seebädern.

Das Urlaubsland Thüringen bietet abwechslungsreiche Landschaften, eine sagenhafte Dichte an Burgen und Schlössern, eine unvergleichliche architektonische und kulturelle Vielfalt und jede Menge Freizeitspaß. W. Goethe hat die Vorzüge Thüringens und des Thüringens Waldes in seinen Gedichten sehr treffend zusammengefasst.

Andere Bundesländer haben auch wunderschöne Sehenswürdigkeiten und Reiseziele. Ebenso an den großen Binnenseen wie im Mecklenburger Seenland

mit der Müritz, dem Plauer und dem Schweriner See, am Bodensee, Chiemsee und dem Starnberger See sind diese Tourismussparten wichtig.

Die beliebtesten Reiseziele für die ausländischen Touristen in der BRD sind auch der Rhein mit seinen malerischen Schlössern, der Schwarzwald mit seinen Dörfern und Bayern mit seinen Bergen und Seen. Sehr schön ist auch der Harz.

Mit ihrem maritimen Charme und ihrer Weltoffenheit zählt die Hansestadt Hamburg zu Europas schönsten Metropolen und bietet ihren Gästen eine Vielfalt an Hotels, Restaurants, Theatern und Geschäften, schicke Elbstrände und grüne Alsterufer, einen lebendigen Hafen und Sehenswürdigkeiten aus über 1200 Jahren Stadtgeschichte. Frisches Grün, tiefblaue Seen und plätschernde Wasserläufe sind inmitten der Stadt Hamburg. Hamburg beweist, dass sich die Natur und urbanes Leben hervorragend miteinander kombinieren lassen.

Direkt zwischen den Flüssen Ems und Elbe liegt das Bundesland Niedersachsen: eine Region voller landschaftlicher Vielfalt und sehenswerter Städte. Niedersachsen ist das einzige deutsche Bundesland, das Meer und Gebirge in sich vereint. Es hat mit der Nordseeküste und den sieben ostfriesischen Inseln eine der schönsten deutschen Meeresküsten.

In der Sommerzeit gibt es viele verschiedene Exkursionen, herrliche Möglichkeiten für einen Heilungskurort Baden-Baden, einen Landurlaub in den schönsten Dörfern von Bayern.

Die Berge spielen für Aktivurlauber sowohl im Winter (Wintersport), als auch im Sommer (Bergwanderungen, Bergsteigen, Mountainbiking) eine bedeutende Rolle. Die höchsten Berge in Deutschland liegen in den Bayerischen und Allgäuer Alpen. Die Mittelgebirge, beispielsweise Bayerischer Wald, Schwarzwald, Harz und Rhön sind Ziele für Wanderer. Deutschland ist auch als das Land des alpinen Tourismus bekannt. Die Pisten sehen sich hier sehr ordentlich und gepflegt aus, sie sind meistens für die Anfänger im Bereich des Skisports geeignet. Für die Profis sind diese Abstiege recht steil.

Der Aktivurlaub hat außerdem solch eine populäre Form, wie Fahrradtourismus. Radausflüge sind für den Inlandtourismus sehr beliebt. Unter den Deutschen wird es jetzt auch immer populärer, den Urlaub im Dorf auf dem Bauernhof zu verbringen.

Deutschland ist wirklich als ein Land der Museen anerkannt, hier wurden 5725 Museen eingerichtet, das übersteigt die Anzahl der Museen in Italien und Großbritannien zusammen.

Der Städtetourismus erfasst vor allem die großen Städte und einzelne, touristisch berühmte Städte. Es gibt einen fließenden Übergang zum Kulturtourismus, der um zentrale Musik- und Theaterangebote oder Feste und Festivals herum arrangiert wird. Zum Beispiel, Berlin. Die Hauptstadt Deutschlands Berlin liegt am Fluss Spree. Diese Stadt ist sehr schön und alt. Sie wurde im XIII. Jahrhundert gegründet. Die Hauptstadt Berlin ist bei Touristen

für ihre Sehenswürdigkeiten und für ihr vielseitiges Kunst- und Kulturleben außerordentlich beliebt. Berlin ist eine der meistbesuchten Städte Europas. Nach London und Paris belegt die deutsche Hauptstadt den 3. Platz in der Liste der meistbesuchten Städte innerhalb Europas.

Zahlreiche Sehenswürdigkeiten sind in Berlin zu bewundern, darunter viele weltbekannte Bauwerke und Denkmäler: das Brandenburger Tor am Pariser Platz, das Alte Museum auf der Museumsinsel, das Reichstagsgebäude am Platz der Republik, die Prachtstraße Unter den Linden, der Gendarmenmarkt in der historischen Mitte, die Gedächtniskirche auf dem Breitscheidplatz, Checkpoint Charlie in der Friedrichstraße, die Hohenzollernresidenz Schloss Charlottenburg, der Boulevard Ku'damm und der markante Fernsehturm.

Auch die weltgrößten Messen und Ausstellungen in Berlin wie beispielsweise „IFA“ (Internationale Funkausstellung), „Grüne Woche“ (internationale Ausstellung der Ernährungs- und Landwirtschaft, sowie des Gartenbaus) oder „ITB“ (Internationale Fachmesse für Reise und Touristik) locken Jahr für Jahr Millionen an Besucher in die Hauptstadt an. Die ITB Berlin ist die weltweit führende Tourismusmesse. Berlin als Weltstadt genießt den Ruf eines einzigartigen politisch-kulturellen Zentrums.

Zum Schluss muss man sagen, dass die touristische Wirtschaft in allen Regionen Deutschlands stark entwickelt ist. Dazu gehören Hotels, zahlreiche Gaststätten sowie Unterhaltungs- und Dienstangebote.

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Лейпциг является самым большим городом земли Саксония в юго-восточной части Германии и находится на четырех реках. В Лейпциге были созданы лучшие произведения Баха, Шумана, Вагнера, Мендельсона и Гете.

Лейпциг возник в 1015 году на месте деревни древних славян под названием Липск. Это название означало – место у лип, липы считались у них святыми. Городом Лейпциг стал в 1165 году, и долго оставался

крупнейшим мировым меховым торговым центром. С тринадцатого века Лейпциг – экономический центр и главный город Саксонии.

В Лейпциге находится один из самых старейших университетов в Германии и Европе, основанный еще в 1409 году. Здесь обучалось множество известных физиков, философов, писателей и политических деятелей страны, получивших мировую известность.

В городе множество известных культурных объектов. В Гевандхаусе проходят концерты старейшего оркестра Германии с одноименным названием. В оперном театре, который был основан в 1693 году, выступает балетная труппа и оперный хор. Выступления известнейшего хора мальчиков Томанерхор проходят по пятницам и субботам в церкви Святого Томаса.

Большинство известных и интересных памятников архитектуры и достопримечательностей находится на территории старого города. Старая Ратуша, построенная всего лишь за девять месяцев в 1537 году, сейчас представляет собой Музей истории города. Рыночная площадь знаменита Королевским домом, который долгое время являлся местом остановки почтенных гостей города, в том числе и саксонских князей. Есть сведения, что в нем проживал Петр I во время визита в Германию. Здесь же находится известная Старая весовая (Старые весы), здание которой было построено в 1955 году и было Палатой мер и весов. Сейчас в этом здании находится крупная страховая компания [1].

Следующей достопримечательностью можно назвать восхитительную Старую торговую биржу. Она была построена в конце семнадцатого века и там изначально проходили сделки между купцами. Неподалеку стоит памятник великому немецкому поэту и мыслителю Иоганну Гете.

На противоположной стороне от биржи находится здание пассажа Медлера, в котором расположен знаменитый винный погребок. Этот погребок описан в «Фаусте» В. Гете.

Из храмов особо интересной представляется церковь Святого Томаса. Здесь служил известный немецкий композитор Иоганн Бах в качестве кантора хора мальчиков. Местом его захоронения является алтарная часть церкви. Неподалеку расположено здание музея и архива Баха.

Одной из главных достопримечательностей Лейпцига является Памятник битве народов, расположенный в южной части города и являющийся самым массивным мемориалом в Европе. Он установлен по центру поля битвы союзных войск и французской армии Наполеона. Его общая площадь составляет более восьми тысяч квадратных метров, а высота девяносто один метр. Памятник воздвигнут в 1913 году в честь солдат, павших в этой битве. Открытие памятника было приурочено к столетию победы над Наполеоном.

Музей изобразительного искусства представляет более двух с половиной тысяч картин разных эпох, пятьдесят пять тысяч рисунков и графики, а также семьсот пятьдесят скульптурных изображений.

Ботанический сад Лейпцигского университета является самым старым в Германии, он существует с 1542 года. Сейчас в нем произрастает более десяти тысяч растений, а его коллекция насчитывает двести видов бабочек.

Лейпцигский зоопарк входит в тройку старейших и самых крупных по многообразию видов животных в Европе. В зоопарке находится самый большой европейский аквариум, в котором можно увидеть почти четыреста видов рыб. В зоопарке обитают среди прочих животных и птиц гривастые волки, тигры, даурские журавли, карликовые буйволы, тупорылые крокодилы и еще ряд исчезающих видов.

В Лейпциге проводятся многочисленные ярмарки. В связи с этим Лейпциг называют городом ярмарок. Самой крупной является Лейпцигская ярмарка, которая входит в состав старейших в мире [1].

В марте каждого года на протяжении четырех дней проходит знаменитая Лейпцигская книжная ярмарка, по своему размаху стоящая на втором месте в мире. Она начала свое существование еще в семнадцатом веке, после чего Лейпциг стал центром книжной торговли страны.

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СЕКЦИЯ «НАУЧНО-ТЕХНИЧЕСКИЙ ПРОГРЕСС: ТЕНДЕНЦИИ И ПЕРСПЕКТИВЫ»

Т.С. Белоусова

AMAZING 3D CREATIONS

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Recently, 3D printers have become very popular throughout the world, many unique and useful inventions being created with their help. I would like to tell about some of these inventions.

Due to the rapid development of robotics cheapening of using 3D-printing technology over recent years, prosthetics issues attracted a lot of attention. A huge number of prostheses and implants have been created, which literally "saved" the lives of patients.

The company "Motorika" gave a five-year boy with a congenital hand defect from Novosibirsk a prosthesis "KIBI". Customized 3D print prostheses are designed at low cost for temporary replacement as the child grows up and they are installed free of charge, at the expense of the state. [2]

3D printed implants and prosthetics have helped many people, but what could be more miraculous than letting the paralyzed walk. 3D Systems company gave Amanda Boxel, who had been in a wheelchair for years, a full body scan. Then they were able to make form-fitting parts that integrated seamlessly with the moving parts of an exoskeleton. And Boxel was able to walk again. [3]

High technologies come to the rescue of not only people, but also animals.

A Chihuahua puppy named TurboRoo was born without front paws. Director of industrial design bureau 3dyn Mark Dedrick decided to help the puppy. He designed and manufactured a special 3D-printed trolley with wheels from the skateboard. And not one, but a dozen, as the design had to be gradually modified as the dog grows. [1]

A poacher maimed a seven-year old eagle named Beauty, having shot the top of the beak in 2005. The damage was so great that her tongue and nasal sinuses were exposed. A whole team of specialists, including engineers, scientists and dentists, worked on the creation of the prosthesis. Now the eagle can drink and eat on her own, previously the bird was fed and watered by hand.

3D printing is also widely used in the aerospace industry. SpaceX company and NASA use all the possibilities of 3D printing from metal to produce parts of missile ships, which allows them to significantly reduce costs while improving performance.

Researchers from Cornell University took hydrophilic polymers, actively used in the food industry, instead of plastic, and as a result, it was possible to

print chocolate, cookies, apple, cheese, marshmallow, bread and other products on a 3D printer. And last year in London the world's first 3D restaurant was opened, where all food and furniture are printed on the printer.

Today there is already a full-fledged acoustic guitar printed on a 3D printer. According to its creator Scott Summit, this guitar in many respects surpasses any made in the factory.

A Chinese company has successfully 3D printed a five-storey apartment building and a 1,100 square metre villa from a special print material. In time, the company hopes to use its technology on much larger scale constructions, such as bridges and even skyscrapers. [4]

Also a car, camera, wristwatch, clothes, shoes and many more amazing things were created with the help of 3D printer.

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ЭРГОНОМИКА В ДИЗАЙНЕ

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Наличие художественного вкуса, умение графически выразить свои идеи и знание архитектурных стилей, к сожалению, не дают возможности до конца познать все тайны интерьера. Одним из необходимых составляющих дизайна интерьера является знание основ эргономики. В настоящее время эргономика признается естественнонаучной базой дизайна. В силу схожести целей эргономики и дизайна: формирование гармоничной предметной среды, отвечающей материальным и духовным потребностям человека, а также ориентация на выявление и проработку

структурной связи функциональной и композиционной составляющих вещи дает основание представлять объекты эргономики и дизайна как единый объект.

Различия дизайна и эргономики как самостоятельных понятий заключаются в том, что в основе структуры дизайнерской деятельности лежит художественный образ, имеющий социальный характер, а в эргономическом моделировании – образ сенсомоторный, носящий психофизиологический, по сути, биологический характер. Еще древнегреческий философ Протагор утверждал: «Человек – мера всех вещей». Эта идея остается актуальной на протяжении всей истории цивилизации.

Эргономика – комплексная дисциплина, возникшая на стыке психологии и техники, физиологии, гигиены, анатомии, биомеханики, антропологии, биофизики.

Термин в написании «*ergonomia*» (эргономия) впервые был использован польским ученым Войцехом Ястшембовским в 1857 году в его работе «План эргономики, т. е. науки о труде, основанной на истинах, взятых из естественных наук». Дальнейшее развитие получила в 1920-х годах, в связи со значительным усложнением техники, которой должен управлять человек в своей деятельности. Первые исследования в этой области начали проводиться в СССР, Великобритании, США и Японии. Эргономика изучает действия человека в процессе работы, скорость освоения им новой техники, затраты его энергии, производительность и интенсивность при конкретных видах деятельности. Особой формой эргономики в области компьютерного программного обеспечения является так называемое «Юзабилити» – это научно-прикладная дисциплина, занимающаяся повышением эффективности, продуктивности и удобства пользования инструментами деятельности. От эргономики юзабилити отличает заинтересованность в эффективности работы пользователя (потребителя), а не человеко-машинной системы в целом. Она учитывается при создании сайтов, приложений для смартфонов и программ. Относительно интерьера, – эргономика – это наука о «правильном» расположении мебели, осветительных приборов и предметов, окружающих человека по отношению к пропорциям его тела. В ее задачи входит всестороннее изучение функциональных особенностей и возможностей человека в процессе его деятельности и взаимодействии с окружающими предметами.

При организации рабочих мест необходимо учитывать то, что конструкция рабочего места, его размеры и взаимное расположение его элементов должны соответствовать антропометрическим, физиологическим и психофизиологическим данным человека, а также характеру.

Эргономика влияет на дизайн того или иного предмета. Если это кресло или стул, он должен быть не просто красивым, но обязательно удобным, а еще лучше, когда он может быть полезным для здоровья. Благоприятное положение тела для спины – это положение стоя, когда позвоночник принимает S-образную форму. Только такое положение спины может считаться необходимым критерием для нормы осанки.

Когда человек сидит на обычном стуле – три четверти массы тела давит на межпозвоночный диск в области поясницы и седалищные бугры, такое положение неестественно для позвоночника и приводит к патологиям. Проблемы неправильного сиденья сказываются также и на шее и области таза. Решение этой проблемы было найдено благодаря талантливым дизайнерам и исследователям в области эргономики.

В 1970м году, Датский исследователь доктор Мендел изучал, как ученики в школах сидят за партами в школах и обнаружил, что многие к концу учебного дня стремятся сидеть на крае стула опустив колени вниз. В таком положении выпрямляется спина, и сидеть получается удобно, но проблема в том, что стулья в школах для такой посадки не предназначены. Мендел предложил наклонить сиденье стула на 15 градусов, благодаря чему позвоночник мог бы держаться в естественном положении, равносильно положению стоя. По его рекомендациям было изготовлено несколько опытных образцов. Однако все они имели значительный недостаток – тело сидящего постоянно сползало вниз, что вызывало массу неудобств.

Подобные исследования велись и в Норвегии. Производитель мебели Питер Опсвик вместе с талантливыми исследователями создали удобный стул с опорами на колени, которые не позволяли телу съезжать вниз. Такой стул назвали «коленный стул». Нагрузка равномерно распределяется на ягодицы и колени, в результате центром тяжести оказывается позвоночник, и сидящий рефлекторно выпрямляет спину. Происходит компенсация напряжения, при этом на таком стуле удобно сидеть. При правильно отрегулированном стуле сидящий не стоит на коленях и какого-либо избыточного давления тоже не оказывается.

Подобный опыт необходимо учитывать при проектировании любой вещи, от бытовых предметов мебели, до технических систем и рабочих мест. При проектировании рабочих мест вопросам эргономики уделяется особенное внимание. Например, при проектировании и зоны за рабочим компьютером эргономика акцентирует внимание, прежде всего, на длине голени человека, поскольку именно она указывает на оптимальную высоту его кресла или стула. Эргономика рабочей зоны предусматривает и то, что высота, площадь и наклон рабочего стола определяется типом выполняемой сотрудником работы.

Все нужные трудовой деятельности предметы согласно правилам эргономики размещаются на доступном расстоянии от стола, чтобы человек мог ими пользоваться, не прибегая к лишним усилиям. Эргономика также требует повышенного внимания дизайнера к организации освещения. Освещение не должно носить интенсивный и слишком яркий характер, чтобы не ослеплять или излишне напрягать глаза человека. Оно должно способствовать комфортной работе и положительному настроению человека.

Итак, эргономика в настоящее время играет значимую роль в промышленном и предметном дизайне, при создании бытовых изделий и проектировании офисного оборудования, а также при оформлении интерьера и планировке помещения. Это сложная дисциплина, которая в той или иной степени влияет на все вопросы, касающиеся области деятельности профессионально дизайнера.

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С.А. Мульдьяиров

НОВЫЙ МЕТОД ОТСЛЕЖИВАНИЯ ПОЛЬЗОВАТЕЛЕЙ В ИНТЕРНЕТЕ ВО ВСЕХ БРАУЗЕРАХ

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Всем уже давно известно, что каждое действие пользователя в интернете отслеживается. Какой сервис вы посещали, какую страницу, письмо кому-то, с точностью до минуты. Хранится любая информация с хорошими и плохими целями.

Банки отслеживают пользователей в качестве метода проверки подлинности, чтобы предложить своим клиентам улучшенную защиту безопасности. Розничные торговцы отслеживают клиентов и

потенциальных клиентов для доставки персонализированных услуг с учетом их вкусов и потребностей.

Метод для отслеживания называется веб-дактилоскопией. Веб-дактилоскопия является основным методом сбора информации, которая может быть использована для полной или частичной идентификацией данного пользователя, даже если “куки” отключены.

Такие методы быстро развиваются. Тем не менее, самые передовые и широко используемые методы отслеживают пользователей только в одном браузере.

Команда исследователей во главе с Yinzhi Cao, доцент компьютерной науки и техники, и аспирантом Song Li и Erik Wijmans из Вашингтонского университета в Сент-Луисе, разработала первый кросс-браузерный метод снятия отпечатков пальцев для использования на уровне машины возможности для идентификации пользователей. Эту работу они описали в статье (Cross)Browser Fingerprinting via OS and Hardware Level Features.

Новый подход, разработанный группой Cao принимает ОС и уровни аппаратных функций, включая графические карты, предоставляемые WebGL, аудио стек с помощью аудио-контекста, CPU и HardwareConcurrency. В дополнение к возможности однозначно идентифицировать больше пользователей и единственным другим методом кросс-браузерной дактилоскопии подход группы отличается высокой надежностью. Согласно их исследованию, удаление какого-либо одного признака снижает точность не более чем на 0,3 процента.

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ZUSAMMENARBEIT IN DER SICHERHEIT

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Naturkatastrophen, Terrorismus, organisierte Kriminalität oder Großunfälle machen nicht an nationalen Grenzen Halt. Deutschland kooperiert in der Sicherheitsforschung daher mit vielen internationalen Partnern.

Ziel der Vereinbarung ist die wechselseitige Öffnung von Sicherheitsforschungsprogrammen sowohl in Deutschland als auch in Frankreich.

Im Rahmen der Kooperation werden deutsch-französische Forschungsprojekte gefördert.

Deutschland und Indien blicken auf eine mehr als sechzig Jahre lange Zusammenarbeit in Bildung und Forschung zurück.

Ziel der Zusammenarbeit ist es, durch die Entwicklung innovativer Lösungen die zivile Sicherheit der Bürgerinnen und Bürger in beiden Ländern zu erhöhen.

Mit Israel verbindet Deutschland eine 50 Jahre währende Tradition der wissenschaftlichen Kooperation, die zum gegenseitigen Verständnis viel beigetragen hat.

Mit der Kooperation wollen Österreich und Deutschland die Sicherheit in ihren Ländern und in Europa stärken [1, c. 76].

Die Strategie der Bundesregierung „Internationale Berufsbildungszusammenarbeit aus einer Hand“ wird von den zuständigen Bundesressorts mit der Zentralstelle der Bundesregierung zur Internationalisierung der Berufsbildung umgesetzt und entwickelt.

Deutschland stellt interessierten Partnerländern weltweit seine Expertise zum dualen System der Berufsbildung zur Verfügung [3].

Die Runden Tische tagen regelmäßig in unterschiedlichen Konstellationen.

Denn die deutsche Berufsbildung genießt weltweit einen hervorragenden Ruf. Dadurch wachsen die Auszubildenden leichter in das Arbeitsleben hinein und die Qualifizierung orientiert sich an den betrieblichen Arbeitsprozessen.

Jedes Land in Europa gestaltet seine Bildungspolitik selbst. Dadurch ist über die Jahrzehnte eine Vielfalt an unterschiedlichen Bildungssystemen gewachsen.

Ein solcher Austausch unterstützt die Europäische Union und die Mitgliedstaaten in vielen Politikbereichen [1, c. 89].

Um die Menschen in Europa auf diese Herausforderungen vorzubereiten, einigten sich die Bildungsministerinnen und Bildungsminister der EU bereits im Jahr 2002 darauf, in der Bildungspolitik zusammenzuarbeiten, sich gemeinsame Ziele zu setzen und sie zu erreichen. Im Jahr 2009 vereinbarten sie einen neuen Rahmen für die strategische Zusammenarbeit für die Zeit bis 2020 [2].

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ZUSAMMENARBEIT IN DER WIRTSCHAFT UND BILDUNG

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Bund und Länder können bei der staatlichen Wissenschafts- und Forschungsförderung zusammenwirken.

Die Förderung von Wissenschaft, Forschung und Lehre ist eine gemeinsame Aufgabe von Staat und Gesellschaft [1, с. 27].

Die föderative Staatsstruktur der Bundesrepublik Deutschland bestimmt auch die Verteilung der Verantwortlichkeiten für das Bildungswesen zwischen Bund und Ländern. Die Kompetenz für die allgemeine und damit für die schulische Bildung liegt bei den Ländern. Doch auch der Bund verfügt über mehrere Kompetenzen. Gemeinsam nehmen Bund und Länder ihre gesamtstaatliche Verantwortung wahr. Die Länder haben das Recht der Gesetzgebung. Im Bereich des Bildungswesens umfasst dies den Schulbereich, den Hochschulbereich, die Erwachsenenbildung und die allgemeine Weiterbildung.

Nach der Kompetenzverteilung des Grundgesetzes ist der Bund insbesondere für die Regelungen in verschiedenen Bereichen von Bildung, Wissenschaft und Forschung. Der Bund verfügt zudem über die Gesetzgebungskompetenz für die Statusrechte und -pflichten der Beamten und die auswärtigen Angelegenheiten [3].

Bund und Länder können aufgrund von Vereinbarungen zusammenwirken bei der Förderung von Wissenschaft, Forschung und Lehre.

Ein modernes Bildungssystem muss Mobilität von Lernenden und Lehrenden, Vergleichbarkeit und Chancengleichheit ermöglichen. Um für das notwendige Maß an Gemeinsamkeiten in Bildung und Wissenschaft zu sorgen, haben die Länder die Ständige Konferenz der Kultusminister der Länder (KMK) gebildet. An den Sitzungen der KMK nimmt auch das Bundesministerium für Bildung und Forschung teil.

Die Gesundheitsforschung nimmt deshalb eine herausgehobene Stellung in den Förderanstrengungen der Bundesregierung ein [2].

In kaum einem anderen Forschungsbereich profitieren Bürger so unmittelbar von neuen Erkenntnissen und Innovationen wie in der Gesundheitsforschung.

Kernelement des Programms ist die Erforschung besonders weit verbreiteter Krankheiten, den so genannten Volkskrankheiten.

Darüber hinaus nimmt die Projektförderung moderne und wichtige Querschnittsthemen in den Blick [3].

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GREEN BUILDING IN EUROPE AND RUSSIA

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Green building (also known as green construction or sustainable building) refers to both a structure and the using of processes that are environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. In other words, green building design involves finding the balance between homebuilding and the sustainable environment. This requires close cooperation of the design team, the architects, the engineers, and the client at all project stages. The Green Building practice expands and complements the classical building design concerns of economy, utility, durability, and comfort.

Although new technologies are constantly being developed to complement current practices in creating greener structures, the common objective of green buildings is to reduce the overall impact of the built environment on human health and the natural environment by: efficiently using energy, water, and other resources; protecting occupant health and improving employee productivity; reducing waste, pollution and environmental degradation.

Green home building is extremely prevalent in Europe today, Europeans have been building green homes for a considerable length of time. An extra green home building material that is utilized broadly as a part of Europe is the Wood Fiber Board. This kind of board is made from the wood chip waste which is a side effect of sawmills. Specialists clarify the way that these sheets don't transmit poisons when produced. They are exceptionally reasonable to create, and they are completely compostable.

Europe is way ahead of Russia in the green building arena. Their homes use 1/3 the energy that ours do. Aside from energy efficiency, they also take into consideration sustainable construction, low CO2 emissions, recyclable materials, indoor air quality and human comfort.

Since the 1900s, architects have been designing buildings to meet minimum energy requirements. New and young architects today understand environmental issues and create sustainable buildings.

The European Union has an energy plan to reduce emissions by 2020.

20-20-20 means: 20% less greenhouse gas emissions than 1990 levels, 20% increase in using renewable energy, 20% reduction in overall energy consumption.

Many Europeans live in urban areas, and major renovations will be common, although these goals apply to new construction as well. The efficiency of a building will be measured by the energy use throughout its life. A well-built, durable building with a long lifetime will offset the high energy used in its construction.

France has a national energy plan in place that will make it the least energy intensive country in Europe by 2020. They hope to reduce residential energy use 38% from 2008 levels. By the end of next year, new commercial buildings must drastically reduce energy consumption. By the end of 2020, all new buildings must create their own energy and be 'positive energy'. Existing buildings must be upgraded to these standards, too.

A relatively new feature of German green architecture is the 'dynamic facade', which is exterior shading that can be automatically or manually adjusted during the day. Windows do not need expensive glazing to cut heat transmission and glare, and air conditioning loads are reduced. Germany hopes to abandon nuclear energy within the next ten years and convert to renewable energy.

In Europe, 60% of employees involved into construction are professionally trained specialists. In Russia there are 6%. In this case, education plays a very important role. The movement to develop the construction of "green buildings" in Russia is just beginning. In fact, our country is the last of the major powers, where the Council for Environmental Construction is being created. In Russia, the Sochi Winter Olympic Games played an important role in the development of the construction, "friendly" with respect to nature: the ecological compatibility of the buildings was an indispensable condition for the International Olympic Committee. Russia has a lot of prospects. We have conditions for the construction of wind and tidal power stations, the use of heat from geothermal sources, and the topic of building biofuel plants is relevant for cities. It is planned that in Russia the first major eco-project will be Skolkovo. Following the results of the international competition for the development of the town-planning concept of this innovative settlement, its winner was the French company AREP, which proposed the concept of a "garden city".

With Europe being so small, it is easy to adapt one rating system to the various countries. The climate is not varied, and there is a sense of community throughout. Russia has a huge territory and different climate in different cities of

the country. Each nation must build its own houses. This is associated with cultural traditions, climatic conditions and an existing infrastructure. It means you can take an idea, but implementation and creation should be adapted to the local environment. The same is related to the equipment – all have to be adapted to deal with local characteristics.

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WIND POWER PLANT

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It is necessary to highlight that wind power is the use of air flow through wind turbines to mechanically power generators for electric power. Wind power, as an alternative to burning fossil fuels, is plentiful, renewable, widely distributed, clean, produces no greenhouse gas emissions during operation, consumes no water, and uses little land.[2] The net effects on the environment are far less problematic than those of nonrenewable power sources.

Wind power has been used as long as humans have put sails into the wind. For more than two millennia wind-powered machines have ground grain and pumped water. Wind power was widely available and not confined to the banks of fast-flowing streams, or later, requiring sources of fuel. Wind-powered pumps drained the polders of the Netherlands, and in arid regions such as the American mid-west or the Australian outback, wind pumps provided water for livestock and steam engines.

Wind power is a clean, renewable energy source and offers many advantages, which explains why it's one of the fastest-growing energy sources in the world. Research is aimed at improving technology, lowering costs, and addressing the challenges to greater use of wind energy.

Advantages of Wind Power

- Wind energy is a clean fuel source. Wind energy doesn't pollute the air like power plants that rely on combustion of fossil fuels, such as coal or natural

gas. Wind turbines don't produce atmospheric emissions that increase health problems like asthma or create acid rain or greenhouse gases. According to the Wind Vision Report, wind has the potential to reduce cumulative greenhouse gas emissions by 14%, saving \$400 billion in avoided global damage by 2050.

- Wind power does not use water, unlike conventional electricity sources. Producing nuclear, coal, or gas-fired power uses water for cooling. Water is becoming a scarce resource all over the country. Wind power uses zero water in its energy generation.

- Wind is a domestic source of energy. The nation's wind supply is abundant. Over the past 10 years, wind capacity increased an average of 31% per year, reaching a cumulative capacity of over 75,000 MW in 2016, enough to power over 20 million homes. Wind power is the largest source of annual new generating capacity, well ahead of the next two leading sources, solar power and natural gas.

- Wind power is inexhaustible. Wind is actually a form of solar energy. Winds are caused by the heating of the atmosphere by the sun, the rotation of the Earth, and the Earth's surface irregularities. For as long as the sun shines and the wind blows, the energy produced can be harnessed to send power across the grid.

- Wind power is cost-effective. It is one of the lowest-cost renewable energy technologies available today, with power prices offered by newly built wind farms averaging 2 cents per kilowatt-hour, depending on the wind resource and the particular project's financing. Even without government subsidies, wind power is a low-cost fuel in many areas of the country.

- Wind turbines can be built on existing farms or ranches. This greatly benefits the economy in rural areas, where most of the best wind sites are found. Farmers and ranchers can continue to work the land because the wind turbines use only a fraction of the acreage. Wind power plant owners make rent payments to the farmer or rancher for the use of the land, providing landowners with additional income.

- Wind creates jobs. In 2016, the wind energy sector invested more than \$8.8 billion of private capital in the U.S. economy to build projects and employed more than 101,000 workers (approximately 30% women, 11% veterans, and 25% minorities), according to the 2017 U.S. Energy and Employment Report. More than 8,800 technicians were employed in 2015 to monitor and maintain wind turbines, and this profession is expected to grow by 108% in the next decade, making it the country's fastest-growing occupation (according to the Bureau of Labor Statistics). According to the Wind Vision Report, wind has the potential to support more than 600,000 jobs in manufacturing, installation, maintenance, and supporting services by 2050.

Wind farms are created when multiple wind turbines are placed in the same location for the purpose of generating large amounts of electric power.

Due to rising energy prices and the resultant search for alternatives, there are now thousands of wind farms in many countries around the world.

Large wind farms consist of hundreds of individual wind turbines which are connected to the electric power transmission network. For new constructions, onshore wind is an inexpensive source of electricity, competitive with or in many places cheaper than fossil fuel plants. Small onshore wind farms provide electricity to isolated locations. Utility companies increasingly buy surplus electricity produced by small domestic wind turbines. Offshore wind is steadier and stronger than on land, and offshore farms have less visual impact, but construction and maintenance costs are considerably higher.

The majority of wind turbines consist of three blades mounted to a tower made from tubular steel. There are less common varieties with two blades, or with concrete or steel lattice towers. At 100 feet or more above the ground, the tower allows the turbine to take advantage of faster wind speeds found at higher altitudes.

Turbines catch the wind's energy with their propeller-like blades, which act much like an airplane wing. When the wind blows a pocket of low-pressure air forms on one side of the blade. The low-pressure air pocket then pulls the blade toward it, causing the rotor to turn. This is called lift. The force of the lift is much stronger than the wind's force against the front side of the blade, which is called drag. The combination of lift and drag causes the rotor to spin like a propeller.

Wind turbines are designed to exploit the wind energy that exists at a location. Aerodynamic modeling is used to determine the optimum tower height, control systems, number of blades and blade shape.

There are two basic types of wind turbines: those with a horizontal axis and those with a vertical axis.

The majority of wind turbines have a horizontal axis: a propeller-style design with blades that rotate around a horizontal axis. Horizontal axis turbines are either upwind (the wind hits the blades before the tower) or downwind (the wind hits the tower before the blades). Upwind turbines also include a yaw drive and motor – components that turns the nacelle to keep the rotor facing the wind when its direction changes.

While there are several manufacturers of vertical axis wind turbines, they have not penetrated the utility scale market (100 kW capacity and larger) to the same degree as horizontal access turbines. Vertical axis turbines fall into two main designs:

- Drag-based, or Savonius, turbines generally have rotors with solid vanes that rotate about a vertical axis.
- Lift-based, or Darrieus, turbines have a tall, vertical airfoil style (some appear to have an eggbeater shape). The Windspire is a type of lift-based

turbine that is undergoing independent testing at the National Renewable Energy Laboratory's National Wind Technology Center.

Wind turbines convert wind energy to electricity for distribution. Conventional horizontal axis turbines can be divided into three components:

- The rotor component, which is approximately 20% of the wind turbine cost, includes the blades for converting wind energy to low speed rotational energy.
- The generator component, which is approximately 34% of the wind turbine cost, includes the electrical generator, the control electronics, and most likely a gearbox (e.g. planetary gearbox), adjustable-speed drive or continuously variable transmission component for converting the low speed incoming rotation to high speed rotation suitable for generating electricity.
- The structural support component, which is approximately 15% of the wind turbine cost, includes the tower and rotor yaw mechanism.

In the near future, wind energy will be the most cost effective source of electrical power. In fact, a good case can be made for saying that it already has achieved this status. The actual life cycle cost of fossil fuels (from mining and extraction to transport to use technology to environmental impact to political costs and impacts, etc.) is not really known, but it is certainly far more than the current wholesale rates. The eventual depletion of these energy sources will entail rapid escalations in price which – averaged over the brief period of their use – will result in postponed actual costs that would be unacceptable by present standards. And this doesn't even consider the environmental and political costs of fossil fuels use that are silently and not-so-silently mounting every day.

The major technology developments enabling wind power commercialization have already been made. There will be infinite refinements and improvements, of course. The eventual push to full commercialization and deployment of the technology will happen when the consequences of climate change are finally recognized and admitted.

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ALTERNATIVE ENERGIE

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Die Bundesregierung beabsichtigt, den Anteil erneuerbarer Energien an der Energieversorgung zu verdoppeln. Die Biogasnutzung kann hierzu beitragen. Sie hat außerdem den Vorteil, dass die Emissionen von Kohlendioxid reduziert werden. Die meisten erneuerbaren Anlagen wurden bisher in Bayern, Baden-Württemberg und Niedersachsen installiert. Biogas entsteht durch mikrobiellen Abbau organischer Substanzen unter Luftausschluss. Die Biogastechnik stellt eine indirekte Nutzung der Sonnenenergie dar. Aufgrund des hohen Energiegehaltes lässt sich Biogas als Energieträger für die Wärme- und Stromerzeugung sehr gut nutzen. Darüber hinaus ist Biogas unabhängig von Wind, Wetter und Tageszeit. Für die Biogasgewinnung lassen sich leicht abbaubare organische Substrate verwenden. Als Kofermente aus der Landwirtschaft kommen zum Beispiel Grüngut, Rübenblatt und Kartoffelkraut in Frage. Außer landwirtschaftliche Kofermente sind Verarbeitungsrückstände aus der Lebensmittelindustrie, Gemüseabfälle von Großmärkten, Speiseabfälle oder Rasenschnitt. Das gewonnene Biogas wird zur Erzeugung von Strom und Wärme verwendet. Der wichtigste Effekt der Umweltentlastung durch die Biogastechnik ist die Vermeidung von Kohlendioxid- (CO₂-) Emissionen.

Nachwachsende Rohstoffe sind pflanzliche, aber auch tierische Erzeugnisse, die im Nicht-Nahrungsmittelbereich eingesetzt werden. Bei den pflanzlichen nachwachsenden Rohstoffen wird unterschieden zwischen Industriepflanzen und Energiepflanzen. Werden Pflanzen oder Pflanzenteile zur Energiegewinnung verbrannt, bezeichnet man sie üblicherweise als Energiepflanzen. Tierische Produkte, wie zum Beispiel Haute, Rindertalg, Felle und Wolle, werden als tierische Rohstoffe bezeichnet. Nachwachsende Rohstoffe können die fossilen Energieträger Erdöl, Gas und Kohle ersetzen. Die breite Palette an Pflanzen bereichert darüber hinaus die Kulturlandschaft. Die Volkswirtschaft ist zurzeit in hohem Maße auf die fossilen Rohstoffe Erdöl, Erdgas und Kohle angewiesen. Die bekannten Ressourcen fossiler Energieträger werden nach Experteneinschätzung in 95 Jahren erschöpft. Die bekannten Ölvorkommen der Erde reichen laut prognosen noch 40 Jahre. Bei Gas sind es entsprechend 65 Jahre und bei Kohle 240 Jahre. Auch bei weiterem technischem Fortschritt kommt dem Einsatz und der Erforschung regenerativer Energien eine immer größere Bedeutung zu.

Eine Forschergruppe der Universität von Akita in Japan will beweisen, dass selbst Schnee sich für die Energiegewinnung nutzen lässt. Die erste wirtschaftlich nutzbare Schneeanlage mit einer installierten Leistung von 10 Kilowatt soll zu Füßen des Berges Chokai-san gebaut werden. Die erzeugte Elektroenergie ist für die Versorgung landwirtschaftlicher Betriebe in diesem Gebiet vorgesehen.

Die Sonne sendet je Sekunde ungeheuer viel Energie auf die Erde. Schon in der absolut reinen Atmosphäre gehen etwa 50 Prozent verloren. Wolken, Staub und anderes verringern den Teil der Energie bis auf 40 Prozent. Trotzdem ist das noch eine riesige Menge Sonnenenergie geblieben. So ist unsere gesamte moderne Industrie letzten Endes durch Sonnenenergie entstanden. Die Sonnenenergie kann zusammen mit agrokulturellen Maßnahmen und durch die Selektion die Ernährung der Menschheit für die nächsten 100 bis 200 Jahre sichern. Im Prinzip können wir Elektroenergie aus Sonnenenergie in ausreichendem Maße für den Bedarf der Industrie, der Landwirtschaft und der Haushalte gewinnen. Es unterliegt keinem Zweifel, dass die Wissenschaftler in Zukunft die Sonnenenergie mit einem Wirkungsgrad von etwa 20 Prozent in Elektroenergie werden verwandeln können. Man kann ähnliche Batterien für die Landwirtschaft nutzen. In der Nutzung der Sonnenenergie liegen riesige, noch ungenutzte Energiepotentiale. Das erste Sonnenkraftwerk der Welt wurde 1981 auf Sizilien in Betrieb genommen. Die Sonnenenergie hat viele Vorteile. Während Öl knapp und teuer ist, kostet das Sonnenlicht selbst praktisch nichts. Ein weiterer Vorteil der Sonnenenergie ist ihre «ökologische Sauberkeit». Die Abgase der Kohlenverbrennung vernichten unsere Wälder und die Kernenergie gilt als gefährlich. Die Sonnenenergie ist völlig «sauber» und bedeutet für niemanden eine Gefahr. Die Nutzung der Sonnenenergie verursacht keine Erwärmung der Erde, d. h. keine Klimaveränderungen. Und nicht zuletzt ist die Sonne eine garantiert unerschöpfliche Energiequelle[1].

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FUTURE TECHNOLOGIES IN MODERN LIFE

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People in modern world can hardly imagine their lives without machines. Every day either a new gadget is invented or an old one is improved. Different people appreciate new inventions differently. Some suppose that sophisticated

gadgets are really useful and necessary, while others find them absolutely awful as they influence people badly. As for us, we are pretty sure that new inventions make people's lives easier.

The most important invention of humanity is transport. No one can imagine modern technological progress without globalization with its new forms of transport. Over the next decade, the idea of getting to work on time, heading out to the hinterlands for your family vacation or even going to the game will become much easier. Cars will drive themselves along pre-determined routes. Trains will use new magnetic rail systems. And an amazing new "hyperloop" train will speed along at 800 miles per hour.

These innovations are not just spinning their wheels. They are set to debut within the next 10 years or have already started transporting us.

"New technologies have the potential to make our roads and transit systems safer, greener and more efficient," Gregory Winfree, the administrator of the Department of Transportation's Research and Innovative Technology Administration, told FoxNews.com. "We are working hard to ensure that these technologies can be integrated safely into our existing system." [2]

"We will need to do something," said Thilo Koslowski, the lead automotive analyst at research firm Gartner, who studies next-generation transportation, "given that we will continue to see more vehicles on the road but won't be able to grow infrastructure at the same time. We have to get smarter about using that infrastructure and/or innovate in passenger vehicles and mobility." [3]

One of the most exciting innovations in transportation has to be the Hyperloop train. Rising on nearly airless tubes at 800 mph, the train will transport you from Los-Angeles to San Francisco in just 30 minutes. Elon Musk announced a design scheme back in August, but FoxNews.com has learned the concept is more than a pipe dream – it is now a real technology in development.

Also there are some upgrading old technologies. "Magnetic levitation" trains are not just a lofty dream held over from the '50s. They are already in operation in Shanghai and Japan. South Korea is building a maglev train that will operate within the Incheon Airport, and China reportedly has a second maglev train in development.

A magnetic force lifts and propels the train using a minimal amount of energy compared to diesel-powered or electric-powered trains. The trains whisk passengers along at up to 310 miles per hour. A planned maglev train will transport passengers over 200 miles between Nagoya and Tokyo in just 40 minutes, helping to free congested roads, reduce air pollution, and reduce accidents.

Of course, the main issue with maglev trains is the high cost of development. Because of the fast speeds the trains have to be routed directly between destinations, said Enderle.

One way to solve transportation problems in major cities is to make the

cars much smaller and smarter. So-called “smart cars” have been around for many years. But there are signs of progress. Many automakers including BMW and Nissan already offer compact electric cars. The BMW i3, already available in Europe, can brake automatically when you take your foot off the accelerator, consume no gasoline and operate for 80-100 miles per charge.

“I do believe that there is a growing opportunity for new types of vehicles specifically designed for urban areas,” Koslowski said, adding that these cars need more of a “wow” factor and will have to become part of an urban area’s overall plan for better transportation in a city, not just showy small cars for individual drivers [2].

Another modern invention is wearable devices. Many people found the first wave of wearables came up short. Entry-level price points were high, form factors were clodgy and accuracy left a lot to be desired. It’s no wonder there was a 30% return rate and high product abandonment after six months. Companies found getting wearables “right” is a tall order. To be truly useful, usable and desirable for people, we’ll see the following future improvements in wearable tech products to come in 2015 and beyond.

They are invisible. Moore’s Law contends that as components get smaller, products gain efficiency and become more powerful. In other words, you can think of current wearables as a boom box on your wrist. Between conductive fabrics or sensor-clad smart garments, wearables will intertwine so closely with fashion we won’t be able to distinguish them apart. Companies like AiQ Clothing, Hexoskin and OMSignal are already paving the way with biometric garments that measure body vitals. Future wearables could be more hidden by adding a thin film inside your favorite jewelry to measure biometric data, activity levels and even let you know when you’ve been typing at a keyboard too long.

They are personalized. From wedding rings to Invisalign, objects worn on the body 24-7 are a personal thing. Unless the product addresses a critical medical need like a hearing aid, it is unlikely for a single wearable to be desirable enough to be worn all of the time. Take a note from companies like Cuff or Misfit that employ a personalized approach to wearable tech. Their technology nests inside a system of jewelry that a person can select from and wear that day. Wearables are a part of the jewelry legacy, and they should be thought of as both parts tech gadget and a fashion statement.

Alternative forms of energy to power wearables are on the rise. In December 2014 Tommy Hilfiger launched clothing with solar cells to charge devices. We’ve seen kinetic energy-powered gadgets from Chicago-based AMPY to Darla Hollander of Everywhere Energy. A personal favorite is the Peltier Ring by Sean Hodgins that leverages body heat to power small LED lights on a ring. While energy advancements require more polish to achieve commercial viability, they’ll be on your wrist sooner than you think.

They are accurate. From your kids' GPA to your own body's BMI, our culture is getting more numbers oriented across many aspects of life. Approximations of how many steps you walked will no longer suffice as people demand accurate data from their devices – including wearables. We have yet to see industry standards emerge to set manufacturer guidelines and advocate on consumers' behalf. I anticipate advocacy boards to be formed to evaluate devices and require brands to deliver accuracy percentage guarantees. Can you picture a label on Jawbone packaging with a '99.5% accurate gesture tracking' guarantee?

They are permissions-based. Marketers are salivating at the prospect of pushing wearables advertising to you around the clock. As ad revenues dwindle on TV and newspaper formats, next generation devices offer a new opportunity for brands to target people like we've never seen before.

Savvy consumers will demand the ability to set specific permission settings on their device to structure who, what, where and when they can be disturbed. Conversely, people will also need to play an active role to own their body's data generated. Optimal experiences for wearables will be contingent consumers being well-informed and demanding certain privacy settings.

They are seamless. I'm excited to see what happens when wearables converge with connected homes to drive efficiencies without having to tap a button on a screen. Imagine approaching your home's door with groceries in hand, and the heartbeat signature via your wearable signals the door's smartlock to unlock. While crossing your living room, a sensor on your wrist wearable notices your core body temperature is above average and automatically interacts with Nest thermostat to trigger the air conditioning. Your wearable also includes a sensor to detect hydration levels, and it triggers your smart refrigerator to automatically pour a glass of water for you as you enter the kitchen to unload your groceries.

While it is premature to predict specific features or form factors that will prevail in the future, wearable tech presents a fascinating field to study. Never before has computing been small enough to be worn relatively comfortably around the clock on the body, presenting opportunities for breakthrough medical advancements and unfortunately marketing nuisances. With innovations on the horizon cited in this article, we're moving closer to making possible products that are useful, usable and desirable for people.

Another world of modern technologies is World Wide Web. The Internet has turned our existence upside down. It has revolutionized communications, to the extent that it is now our preferred medium of everyday communication. In almost everything we do, we use the Internet – ordering a pizza, buying a television, sharing a moment with a friend, sending a picture over instant messaging. Before the Internet, if you wanted to keep up with the news, you had to walk down to the newsstand when it opened in the morning and buy a local

edition reporting what had happened the previous day. But today a click or two is enough to read your local paper and any news source from anywhere in the world, updated up to the minute.

The Internet has become embedded in every aspect of our day-to-day lives, changing the way we interact with others. This insight struck me when I started out in the world of social media. I created my first social network in 2005, when I was finishing college in the United States – it had a political theme. I could already see that social media were on the verge of changing our way of communicating, helping us to share information by opening up a new channel that cuts across conventional ones.

The Internet has clearly impacted all levels of education by providing unbounded possibilities for learning. I believe the future of education is a networked future. People can use the Internet to create and share knowledge and develop new ways of teaching and learning that captivate and stimulate students' imagination at anytime, anywhere, using any device. By connecting and empowering students and educators, we can speed up economic growth and enhance the well-being of society throughout the world. We should work together, over a network, to build the global learning society. The network of networks is an inexhaustible source of information. What's more, the Internet has enabled users to move away from their former passive role as mere recipients of messages conveyed by conventional media to an active role, choosing what information to receive, how, and when. The information recipient even decides whether or not they want to stay informed.

Just about everything in the world of the Internet still lies ahead of us, and mobile communications as we know them must be reinvented by making them more digital. The future will be shaped by innovation converging with the impact of mobility. This applies not just to social media but to the Internet in general, particularly in the social communications field. I feel that many people do not understand what we are doing and have no idea of the potential development of companies like ours at the global level. Right now, there may be somebody out there, in some corner of the world, developing the tool that will turn the Internet upside down all over again. The tools that will alter our day-to-day life create more opportunities, provide new benefits to individuals, and bring more individual and collective well-being. Just ten years ago, social media did not exist; in the next ten years, something else radically new will emerge. There are many areas in which products, processes, and services can be improved or created afresh. The future is brimming with opportunities, and the future of the Internet has only just begun.

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GRENGINE – AN EVOLUTION IN PORTABLE POWER

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Anyone who has wished they had electricity when no power was available can appreciate the value of having a portable electric generator available for use. Whether the generator is merely a backup power supply to use in the event of an emergency power outage or the generator is used occasionally for convenience or recreation, portable electrical power is available in a number of different models and styles of generators.

The reasons why a person might have a portable electric generator are probably as diverse as the different types of generators on the market. Being prepared in the event of a power outage is a very valid concern; hurricanes, tornadoes, tsunamis, earthquakes, and other natural disasters can create a loss of electrical service. In some cases, the outage may last for days or even weeks. While many reasons for having a portable electric generator are linked to preparedness, another purpose is the ability to carry power to a location where none is available. Below are great advantages of a portable electric generator.

1. Backup Household Electrical Power

Many people consider a portable electric generator to important because they want to be prepared in the event of a power outage. For one, having a backup source of power will keep food in the refrigerator fresh during a lengthy power outage. Individuals with health concerns may also need an available electrical source in the event of a power failure. Oxygen-producing machines or other electrically powered medical equipment can be run short-term with a portable electric generator. A room air conditioner might be a critical unit in need of power for individuals with breathing problems and for elderly individuals during hot weather. With a large enough generator and proper wiring, a household air conditioner can be powered with a portable generator.

2. Power Backup for Small Businesses

Any business that would be significantly harmed by more than a few hours of no electricity is a candidate for having an electric generator as an emergency backup.

Small businesses that provide client services can benefit from having a portable electric generator. A firm that provides Internet-based services to their sales force or gives clients access to online information and reports would be severely impacted by a power outage of even a few hours, especially if the company services clients outside of the area affected by the power loss. Small businesses, like family restaurants, butcher shops, rural markets, and other stores that rely on refrigeration could have inventories ruined by a mid- or long-term power outage and could thus benefit from having a portable generator on hand. For critical health care providers, a backup electricity source is vital, particularly to power life-saving machines for critical patients.

Tip: If using a portable electric generator to power a computer, it would be advisable to have a backup battery unit installed between the computer and the generator. Backup battery units or uninterruptible power supply units protect computers against voltage spikes and voltage drops which can occur with an electric generator.

3. Safety for Residents Living in Severe Climates

Individuals who reside in areas where severe climates exist might be well advised to own a portable electric generator. Living in an extreme cold climate and experiencing a power failure could be deadly; having a generator to power portable heaters or backup a furnace could be a lifesaver. Coastal areas in hurricane lanes, geographic regions frequented by tornadoes, and floodplains are all locales where residents could benefit from owning a portable electric generator.

4. Electricity for Recreational Activities

Camping does not have to be a primitive experience; a portable electric generator can bring some of the conveniences of home to a rustic campsite without a power hookup. Campers who like to get away from the confines of a campsite but still want to run a coffee maker first thing in the morning will appreciate a portable electric generator. A hunting cabin deep in the woods can still have small refrigerator and electric stove with a generator providing a supply of electricity.

Portable lights, electronic bug zappers, electric fans, an air compressor, microwaves, and any number of other electronic convenience items can be powered by a portable electric generator. Whether moving a party to the back yard or to the local park, there are occasions when having available electricity will make the event more comfortable and enjoyable.

5. Electrical Supply for Work Site Contractors

Contractors who work on building sites without available electricity often need a portable power source to operate their tools. Painters who use spray gun systems powered by electricity, roofers with nail guns that run off compressed air provided by an electronic air compressor, and contractors who work indoors

and need portable lights to illuminate work areas are a few of the types of trade workers who could benefit from having a portable electric generator.

Construction sites without power and work sites where power is limited or where power is not easily accessible are places where contractors commonly use portable generators. Some portable electric generators are capable of producing 240-volt power; work sites may have 12-volt connections, but if higher voltage is required to operate a powerful construction tool, having a generator with the extra capacity will be invaluable. Portable generators are a welcome addition to many activities at home, at work, and away. In an emergency, portable generators can provide critical backup power. They make camping and tailgating more comfortable. And contractors appreciate the flexibility portable power brings to the jobsite.

GRENGINE is engineered to provide long-lasting power for whenever and wherever you need it. By combining the reliability of a conventional generator with the smart power flexibility of an integrated battery pack, this power hub works for a variety of uses. Noisy generators will be a thing of the past – it runs silently and doesn't give off smoke emissions. Thanks to its silent operation, you can use it for a wide range of uses, from warming your outdoor camping and giving you a sound sleep, to powering up your impromptu events and social gatherings anywhere and anytime. It runs and recharges on solar energy, harnessing the natural energy of the Sun while maintaining a near-zero carbon footprint – easy on the Earth, and easy for your pocket, as you won't need to buy gas to run this thing.

While you may argue that it only runs on batteries which take a lifetime to charge, GRENGINE has been engineered to get up and running without the wait. A patent-pending “hot-swappable” battery system is in place to help you power up anywhere and anytime easily. It allows you to interchange battery packs when you need it – GRENGINE makers claim that it's quicker than filling up gas on a conventional power generator. The batteries run the equivalent of a 12-volt, 100 Amp-hour lead acid battery (the ones you usually see on cars). Giving the same amount of power without the bulk, GRENGINE is able to keep a variety of devices and appliances connected all at the same time without compromise. Being friendly to the environment is a key to its operation, that's why the batteries were made to work for up to 2000 charge and discharge cycles.

Its compact design makes it easy to carry around anywhere. Taking roughly the size of a small drink cooler and tipping the scale at just 24 pounds, GRENGINE blows away its conventional generator competition. A maintenance-free operation during its entire lifetime, a user-friendly electrical interface, and longer battery life cycles make this a game-changer in the market for portable power sources.

GRENGINE changes the landscape of portable power generators by integrating smart features and refining the familiarity of conventional portable power sources.

GRENGINE is the “little engine that can”. It was created in Growing Greener Innovations, to change the world of portable energy with this silent and emission-free solar generator; the only system in the world capable of replacing the standard gasoline operated generators, which are poisoning the world with millions of tons of greenhouse gases and carbon monoxide every year.

The grengine’s patent pending system uses stackable and interchangeable batteries to deliver a knockout punch to the gasoline generator. The formula that has made gas generators the long-standing winner in industrial use, has been the ease of topping up fuel, compared with waiting for batteries to recharge. With grengine you can switch batteries even easier than refilling a gas tank. Effective changes are made gradually. Viable and significant improvement takes time, so our mission is to take meaningful steps toward a more sustainable future. Growing Greener Innovations develop and support environmentally conscious technology, with the objective of continually making our planet greener.

The grengine is constructed to last more than 2000 cycles. It is also compartmentalized, allowing us to recycle only the battery when it does see the end of its life, as opposed to trashing the whole unit. Growing Greener Innovations have designed it to be easy to use so that widespread adoption is inevitable; with widespread adoption comes lasting environmental impact. We can remove millions of tons of greenhouse gases with the grengine.

The grengine 1000 is perfect to run or charge a variety of tools or toys. From cellphones to refrigerators the grengine will keep you going no matter where you are. Growing Greener Innovations’s interchangeable and stackable battery system has changed the game for portable power solutions. You can charge your backup battery from a wall outlet or a solar panel whiles you using grengine 1000 or stack them up for more watt hours. Because it is component based, you can recycle only the battery, as opposed to having to replace the whole unit. Growing Greener Innovations have designed the system for ease of use; simply clip your battery in and go.

Each grengine battery (which weighs only 12lbs) is the power equivalent of a 12V 100 Amp hour lead acid battery (which typically weighs 85lbs). This means with the appropriate adaptor the grengine batteries can be used to power almost anything currently operating on lead acid. Growing Greener Innovations have plans to extend their grengine system to include lawn mowers, water pumps, snow blowers, and so much more.

The unique design of GRENGINE allows the interchangeable batteries to be effortlessly swapped out whenever you need. These super batteries hold an incredible 1200 Watt hours to power anything you’d like. Because they’re modular, you can choose how much power (and therefore weight) you take with

you. When the batteries need recharging, you can easily plug them directly into a wall outlet or even top up with a solar panel. Best of all, when it comes time to recycle them, the batteries can be individually removed so you don't need to buy a whole new unit.

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КОМПЬЮТЕРНАЯ БЕЗОПАСНОСТЬ

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Компьютерная безопасность – процесс предотвращения и обнаружения несанкционированного использования вашего компьютера. Она включает в себя охрану компьютерных ресурсов от попадания в руки злоумышленников и дальнейшего незаконного использования этой информации. Компьютерная безопасность касается четырех основных областей:

1. Конфиденциальность: Только авторизованные пользователи могут получить доступ к информационным ресурсам и определенной информации.
2. Целостность: Только авторизованные пользователи могут изменять какие-либо данные.
3. Доступность: Данные должны быть доступны пользователям при необходимости.
4. Аутентификация: Проверка подлинности предъявляемого пользователем идентификатора.

Важной частью компьютерной безопасности является предотвращение попадания и установки на персональный компьютер вредоносного или нежелательного программного обеспечения. Вредоносная программа относится к классу ПО, который обычно наносит огромный вред компьютеру и даже его владельцу. Вредоносные программы включают в себя вирусы, шпионское и рекламное ПО, «червей» и Троянских коней. Стандартный компьютерный вирус –

небольшая программа, разработанная для вмешательства в работу компьютера, а также для дальнейшего распространения от одного компьютера к другому. Вирусы часто распространяются с помощью соединений в сообщениях мгновенного обмена, либо электронных письмах. Именно поэтому не стоит открывать почтовые соединения, если вы не ждете письма, либо не знаете, от кого оно.

Вредоносные программы могут быть замаскированы как соединения забавных изображений, поздравительных открыток, аудиофайлов или видеофайлов, а также широко распространены посредством загрузок в Интернете. Они могут быть скрыты в незаконном программном обеспечении или других файлах и программах, которые Вы могли бы загрузить.

Компьютерная безопасность охватывает определенные меры безопасности: использование комплектов антивирусных программ и брандмауэров, создание копий важной информации на внешние носители, а также здравый смысл, бдительность в использовании компьютера, сетевых ресурсов или Интернета. Для того, чтобы обезопасить свой компьютер от атак вирусов, утечки, либо потери информации, достаточно придерживаться простых правил: использование сложных, зачастую бессмысленных паролей, которые нелегко предугадать; поддержка актуальности антивирусных программ; а также не стоит нажимать на неизвестные или незапрашиваемые ссылки или соединения и загружать файлы или программы на свой компьютер из неизвестных источников. Важной частью безопасности компьютера является своевременные обновления программного обеспечения. Устаревшее ПО может содержать слабые места, которые взломщик будет использовать с целью нанесения ущерба вашему компьютеру.

Также существует несколько подходов к безопасности в вычислениях, иногда люди могут использовать их комбинацию:

- доверяйте всему программному обеспечению, чтобы соблюдать политику безопасности, но учитывайте, что программное обеспечение не защищено.
- доверяйте всему программному обеспечению, чтобы соблюдать политику безопасности, учитывая, что программное обеспечение проверено как защищенное.
- не доверяйте никакому программному обеспечению, но осуществите политику безопасности с механизмами, которые не защищены.
- не доверяйте никакому программному обеспечению, но осуществите политику безопасности с защищенными механизмами.

Важность информационной безопасности объясняется двумя основными причинами:

1. ценностью накопленных информационных ресурсов;

2. критической зависимостью от информационных технологий.

Современные информационные системы сложны и, следовательно, опасны уже сами по себе, даже без учета активности злоумышленников. Постоянно обнаруживаются новые уязвимые места в программном обеспечении. Приходится принимать во внимание чрезвычайно широкий спектр аппаратного и программного обеспечения, многочисленные связи между их компонентами.

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3D PRINTING

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My speciality is civil engineering. 3D printing technologies are developing nowadays and they widely used in civil engineering. This sphere is very promising and the perspectives are very interesting for me.

Rapid prototyping is a derivation process of 3D objects. 3D printing can be done by different methods and with using different materials. Current technologies allow creating models from gypsum, plastic, special polymeric materials and similar powdered components, which are glued or sintered in the process of creating a prototype. Result of such printing is real thing with all required characteristics.

The first 3D printers appeared in the 80`s but the invention was not revolutionary because it was regarded as expensive toy. There is growth in the popularity of 3D printing in different fields of industry and science at the present time. The cost of 3D printers has been decreasing at a swift pace since 2010: devices, which were worth at that time \$20000, are now costing \$1000 or less.

A lot of companies and individual developers offer budgetary sets for assembly of RepRap which cost less than \$500.

The first device for creating 3D models was American SLA-installation, which was developed and patented in 1986 by Charles Hull, who is one of the founding members of corporation 3D Systems. It was not the first 3D printer in the modern sense but it define 3D printer`s function.

The first samples of 3D printers were similar in appearance on machines of huge sizes and their price was high. But with the course of time 3D printing technology has developed, and it led to size reduction of 3D printers and to their cost-efficiency. Now the market has devices which were designed for at-home use.

3D printing technologies are used for prototyping and manufacturing in building industry, architecture, industrial design, automobile, military-industrial, aerospace, engineering and medical industries, biomedical engineering (for creation of artificial tissues), production of jewelry, modern clothes and shoes, in education, geographic information systems, food industry and in a lot of other ways.

Such objects of 3D printing in industry are used as individual finished parts, for example, motors. These objects are used in zoology and veterinary science. For example, an artificial limb for duck and cameo-shells for crawfish were created in 2013. They are widely used for costume jewelry`s production – earrings, rings, necklace, handbags and watches. They are become spreading in world of fashion because designers use printers for experiments in creation of swimming suits, shoes and dresses. For example, the creation of professional sport shoes – Vapor Laser Talon for football players and New Balance for athletes.

The academic magazines have been publishing articles about opportunities of using 3D technologies in the art since 2005. The Wall Street Journal and The Times put 3D design in the list of 100 most significant achievements of the year in 2007. The exposition of Murray Moss, which has name «Industrial Revolution 2.0: A New Look at the Material World», addressed to 3D printing technologies, was shown in the Victoria and Albert Museum at London Design Festival in 2011.

However, 3D printing has reached the highest scientific achievements in the area of medicine. The exploratory company Organovo tests in laboratories and develops sampling of human tissues. In the future this company plans to adopt 3D printing for using in surgery – in organ transplant, unfortunately now the creation of human organs is impossible. But the creation of bronchial implants (artificial cartilages), cardiac vessels and other kinds is possible now. Finished implant will make normal operational within 2-3 years, extending and conforming to the body, and disappeared. Development of technology allows

simulation of tumors on 3D printer in the area of oncology at the Institute of Cancer Research in London. It allows developing more exact X-ray therapy.

Future using of 3D printing can include the creation of scientific equipment for using in laboratories and for other different scientific using, for example, reconstruction of petrifications in the paleontology, creation of duplicates of priceless archaeological artifacts, reconstruction of bad injured proofs, assembled from the locale of the crime, reconstruction of bones and parts of bodies for medico-legal assessment. Also the technology is considered for using in building. It could allow accelerating the pace of building and cutting cost simultaneously. In particular, there is opportunity to use technologies for construction of space colonies.

From year to year 3D printing more than ever penetrates into knowledge-intensive industries – from medicine to the space industry. It is likely that there it will be able to develop most intensively. But conventional consumers will be able to use this technology in everyday life for different purposes relatively soon.

Not long ago a dwelling was built in Moscow and this technique was successfully applied. In December 2016 year Apis Cor company printed the house with an area of 38 sq.m just in 24 hours. The construction involved only two people: one monitored on the computer, and another fulfilled the automated concrete supply.

For the first time in the Russian construction practice the house has been printed entirely, but isn't built of printed panels. The house was built in the coldest season. But despite it the design hasn't lost the durability and other significant construction characteristics. Such buildings can be built on any uneven relief.

The building was an irregular geometrical shape. Such project has been chosen not casually as one of main goals of construction — to show flexible opportunities of the equipment and a variety of available forms. As the printer prints walls and baffles, its application allows to save up to 70% on exponentiation of a box of the building in comparison with traditional methods of construction.

The low buildings built by means of this technology don't concede according to usual construction characteristic. Buildings have no confines, but allow to save on construction terms, construction materials, working.

Application of 3D construction will help to solve the problem of provision of housing for a large number of people not only in big cities, but also in the remote places of the world where the usual construction of houses is difficult because of climatic conditions and the uneven Earth's surface. It is supposed that soon even the new profession will appear – a 3D-printing designer. The designer 3D-printing will design models of designs and select the best set of components. Perhaps the profession will appear after 2020. Now it is possible to tell that

3D-printing construction has stepped on a new evolutionary stage and will give the opportunity to create fantastically beautiful qualitative architectural constructions. In future I am sure it will be used very widely.

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A SCIENTIFIC BREAKTHROUGH: POLYGRAPH

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We live in a rapidly changing world with highly efficient technologies everywhere on Earth. A variety of scientific breakthroughs pave the way to the development of new fields of sciences as well as to inventions that completely revolutionized our ways of living and thinking. One of the greatest inventions of all times is a polygraph popularly referred to as a lie detector that measures and records several physiological features such as blood pressure, pulse, respiration, and skin conductivity while the questions are asked and answers are given.

Lie detector tests have become a popular cultural icon – from crime dramas and comedies to advertisements – the picture of a polygraph pen wildly gyrating on a moving chart is readily recognized symbol. But as psychologist Leonard Saxe, PhD, (1991) has argued, the idea that we can detect a person's veracity by

monitoring psychophysiological changes is more myth than reality. Even the term “lie detector” used to refer to polygraph testing, is a misnomer. So-called “lie detection” involves inferring deception through analysis of physiological responses to a structured but unstandardized series of questions.

The instrument typically used to conduct polygraph tests consists of a physiological recorder that assesses three indicators of autonomic arousal: heart rate/blood pressure, respiration, and skin conductivity. Most examiners today use computerized recording systems. Rate and depth of respiration are measured by pneumographs wrapped around a subject's chest. Cardiovascular activity is assessed by a blood pressure cuff. Skin conductivity (called the galvanic skin or electrodermal response) is measured through electrodes attached to a subject's fingertips.

The recording instrument and questioning techniques are only used during a part of the polygraph examination. A typical examination includes a pretest phase during which the technique is explained and each test question reviewed. The pretest interview is designed to ensure that subjects understand the questions and to induce a subject's concern about being deceptive. Polygraph examinations often include a procedure called a “stimulation test” which is a demonstration of the instrument's accuracy in detecting deception.

There are a variety of instances in which you may be subjected to a polygraph, or lie detector examination. These tests can be a source of tremendous anxiety, even for people with nothing to hide, and for good reason. Polygraph examinations are interrogations and it is all too common for innocent people to fail them for no reason, resulting in the denial of employment or false criminal accusations. Fortunately, they are easy to trick, so follow these steps to take control of your interrogation. Remember to tell the truth.

There are some simple methods how to cheat a polygraph test. One of them is the following:

Method 1: Apply polygraph countermeasures.

- Say only what you need to. “Yes” or “No” answers should be all you need for most of the test. Resist the temptation to explain your answers or to go into details, although the polygrapher may try to get you to do so. Be courteous and cooperative, but do not offer any more information than is absolutely necessary.

- Don't admit anything relevant. No matter what the lines on the chart look like, nothing is more certain or damaging than your confession. The polygrapher will most likely try to convince you that he or she can “see” a lie in your polygraph, even if there's nothing abnormal there. Don't fall for it. However, you want to appear honest, so don't be afraid to make minor admissions to control questions. Just make sure you don't admit anything in these that can invite further questioning or that may be construed as relevant.

Remember that the job of polygraphers is to extract confessions. In many ways, the whole examination is a complex ruse to trick you into confessing something.

- Answer questions firmly, seriously, and without hesitation. This is no time to joke around or try to be crafty. You want to appear earnest, cooperative and resolute.

- Breathe normally. Except during control questions, you should try to maintain a breathing rate of 15-30 breaths per minute. Do not breathe too deeply.

- Alter breathing rate with control questions. The polygrapher will compare your physiological responses to control questions to your responses to relevant questions. If the deviation from normal during control questions exceeds the deviation from normal during relevant questions, you will pass. If you react more to a relevant question than to control questions, the polygrapher will perceive (rightly or wrongly) that you are lying in response to something relevant and you will likely fail the polygraph.

Change your breathing pattern when a control question is asked. You can make it faster or slower, hold your breath for a couple seconds after an exhalation, or breathe more shallowly. Do this for 5-15 seconds and return to your normal breathing pattern before the next question.

- Answer control questions strangely. When you are asked a question that is obviously a control question, answer in a vague or odd fashion. For instance, if you're asked what year it is, you might respond with, "the year of the snake" or such an answer. Your goal is to make it difficult for the tester to get a bead on what a "normal" response is for you.

- Think of something mentally stressful when answering a control question. If you can artificially worry yourself when answering a control question, you can modify the results of your test so that your "normal" responses appear the same as the responses that actually worry you. For instance, you might try doing mental arithmetic when a control question is asked. Count backwards by 7s in your head as quickly as possible or do some quick long division. This will help change your blood pressure and heart rate to a level that's similar to that which occurs during actual stressful situations - like answering a revealing question. Alternatively, you can mentally picture a frightening scenario, like, for instance, drowning, as this typically will also increase your heart rate and breathing.

- Handle the post-test interview. After you're disconnected from the machine, the polygrapher may leave you in the room for a while and come back. The polygrapher may then claim to "know" that you are lying about something. This is a trick. Remain calm and firmly but politely repeat your denial. Don't change or augment your answers and decline extended post-test interviewing if possible.

The accuracy (i.e., validity) of polygraph testing has long been controversial. An underlying problem is theoretical: There is no evidence that any pattern of physiological reactions is unique to deception. An honest person may be nervous when answering truthfully and a dishonest person may be non-anxious. Also, there are few good studies that validate the ability of polygraph procedures to detect deception. As Dr. Saxe and Israeli psychologist Gershon Ben-Shahar (1999) note, “it may, in fact, be impossible to conduct a proper validity study”. In real-world situations, it's very difficult to know what the truth is.

A particular problem is that polygraph research has not separated placebo-like effects (the subject's belief in the efficacy of the procedure) from the actual relationship between deception and their physiological responses. One reason that polygraph tests may appear to be accurate is that subjects who believe that the test works and that they can be detected may confess or will be very anxious when questioned. If this view is correct, the lie detector might be better called a fear detector.

Some confusion about polygraph test accuracy arises because they are used for different purposes, and for each context somewhat different theory and research is applicable. Thus, for example, virtually no research assesses the type of test and procedure used to screen individuals for jobs and security clearances. Most research has focused on specific incident testing. The cumulative research evidence suggests that CQTs detect deception better than chance, but with significant error rates, both of misclassifying innocent subjects (false positives) and failing to detect guilty individuals (false negatives).

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СЕКЦИЯ
«НАУЧНЫЕ ИССЛЕДОВАНИЯ
В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ»

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SOLAR ENERGY PECULIARITIES

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Solar energy is radiant light and heat from the Sun that is harnessed using a range of ever-evolving technologies such as solar heating, photovoltaics, solar thermal energy, solar architecture, molten salt power plants and artificial photosynthesis.

It is an important source of renewable energy and its technologies are broadly characterized as either passive solar or active solar depending on how they capture and distribute solar energy or convert it into solar power. Active solar techniques include the use of photovoltaic systems, concentrated solar power and solar water heating to harness the energy. Passive solar techniques include orienting a building to the Sun, selecting materials with favorable thermal mass or light-dispersing properties, and designing spaces that naturally circulate air.

People have harnessed solar energy for centuries. In theory, solar energy was used by humans as early as 7th century B.C. when history tells us that humans used sunlight to light fires with magnifying glass materials. Later, in 3rd century B.C., the Greeks and Romans were known to harness solar power with mirrors to light torches for religious ceremonies. These mirrors became a normalized tool referred to as “burning mirrors.” Chinese civilization documented the use of mirrors for the same purpose later in 20 A.D.

Another early use for solar energy that is still popular today was the concept of “sunrooms” in buildings. These sunrooms used massive windows to direct sunlight into one concentrated area. Some of the iconic Roman bathhouses, typically those situated on the south-facing side of buildings, were sunrooms. Later in the 1200s A.D., ancestors to the Pueblo Native Americans known as the Anasazi situated themselves in south-facing abodes on cliffs to capture the sun’s warmth during cold winter months.

In the late 1700s and 1800s, researchers and scientists had success using sunlight to power ovens for long voyages. They also harnessed the power of the sun to produce solar-powered steam boats. Ultimately, it’s clear that even thousands of years before the era of solar panels, the concept of manipulating the power of the sun was a common practice.

Over 100 years ago in France, a scientist used heat from a solar collector to make steam to drive a steam engine. One important development was a remarkably efficient solar boiler invented by Charles Greeley Abbott, an American astrophysicist, in 1936.

How solar electric work

We can change sunlight directly to electricity using solar cells. Every day, light hits your roof's solar panels with photons (particles of sunlight). The solar panel converts those photons into electrons of direct current (“DC”) electricity. The electrons flow out of the solar panel and into an inverter and other electrical safety devices. The inverter converts that “DC” power (commonly used in batteries) into alternating current or “AC” power. AC power is the kind of electrical that your television, computer, and toasters use when plugged into the wall outlet.

Photons strike and ionize semiconductor material on the solar panel, causing outer electrons to break free of their atomic bonds. Due to the semiconductor structure, the electrons are forced in one direction creating a flow of electrical current.

Photovoltaics (PVs) are arrays of cells containing a solar photovoltaic material that converts solar radiation into direct current electricity. Solar cells produce direct current (DC) electricity from sunlight, which can be used to power bulb/equipment or to recharge a battery, however, for grid connected power generation; an inverter is required to convert the DC to alternating current (AC).

A number of solar cells electrically connected to each other and mounted in a support structure or frame is called a photovoltaic module. Multiple modules can be wired together to form an array. In general the larger the area of a module or array, the more electricity will be produced.

When the n-type and p-type semiconductors are sandwiched together, and irradiated with sunlight, the excess electrons in the n-type material flow to the p-type, and the holes thereby.

Vacated during this process flow to the n-type through this hole and electron flow, the two semiconductors act as a cell, creating an electric field at the surface where they meet (known as p-n junction). It is this field that causes the electrons to jump from the semiconductor out toward the surface and make them available for the electrical circuit.

Excellence of solar Photovoltaics:

- Easy installation and maintenance
- Pollution free
- Long life
- Viable for remote and isolated areas, forest, hilly, desert regions.

Economic of solar Photovoltaics:

The high initial cost especially of the silicon wafer is the major constraint in the widespread use of solar cells.

The photoelectric effect occurs when the light above a certain frequency (the threshold frequency) is shown on metals like zinc, this causes electrons to escape from the zinc. The escaping electrons are called photoelectrons.

It was shown in experiments that:

- the frequency of the light needed to reach a particular minimum value (depending on the metal) for photoelectrons to start escaping the metal;
- the maximum kinetic energy of the photoelectrons depended on the frequency of the light not the intensity of the light.

The above two observations can only be explained if the electromagnetic waves are emitted in packets of energy (quanta) called photons, the photoelectric effect can only be explained by the particle behavior of light.

The photoelectric equation involves:

h = the Planck constant 6.63×10^{-34} J s.

f = the frequency of the incident light in hertz (Hz).

ϕ = the work function in joules (J).

E_k = the maximum kinetic energy of the emitted electrons in joules (J).

$$hf = \phi + E_k$$

The energy of a photon of light = hf and the work function (ϕ) is the minimum energy required to remove an electron from the surface of the material.

So we can see from the equation above that if the light does not have a big enough frequency (f) so that the photon has enough energy to overcome the work function (ϕ) then no photoelectrons will be emitted.

The above equation can be rearranged into the form:

$$y = mx + c$$

So plotting a graph of frequency (f) on the x-axis and maximum kinetic energy (E_k) on the y-axis will give a straight line graph. Where the gradient is the Planck constant (h) and the y-intercept is the work function (ϕ), the intercept on the x-axis is the threshold frequency f_0 .

Simple program to calculate the electricity generated by a photovoltaic cell

Method for calculating the electrical energy generated by a PV panel (kWh) through **MATLAB** simulations based on the mathematical model of the cell, which obtains the "Mean Maximum Power Point" (**MMPP**) in the characteristic - curve, in response to evaluating historical climate data at specific of location.

Factors of system components

Solar PV system includes different components that should be selected according to your system type, site location and applications. The major components for the solar PV system are the solar charge controller, inverter, battery bank, auxiliary energy sources and loads (appliances).

- **PV module** – converts sunlight into DC electricity.
- **Solar charge controller** – regulates the voltage and current coming from the PV panels going to Battery and prevents battery overcharging and prolongs the battery life.
- **Inverter** – converts DC output of PV panels or wind turbine into a clean AC current for AC Appliances or fed back into the grid line.
- **Battery** – stores energy for supplying to electrical appliances when there is a demand.
- **Load** – is electrical equipment that is connected to a solar PV system such as lights, radio, TV, computer, Refrigerator, etc.
- **Auxiliary energy sources** – is a diesel generator or other renewable energy sources.

Some of the considerations for a solar energy system include the 20-to-30 year lifespan of the system and the hours of available sunlight. The hours of available sunlight depends on latitude, climate, and unblocked exposure to the sun, ability to tilt panels towards the sun, seasonality, and temperature.

Costs of energy

On the average, approximately 3.6 peak sunlight hours per day serves as a reasonable proxy to calculate the average annual output of electric from solar energy panels.

Output Voltage

- 1 ton of coal - 6,128 kWh
- 1 barrel of oil - 1,699 kWh
- 1 cubic foot of gas - 0,3 kWh

Energy cost

- 1 ton of coal - €27,1 = 0,006 per kWh
- 1 barrel of oil - €52,7 = 0,05 per kWh
- 1 cubic foot of gas - €0,006 = 0,03 per kWh

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SUPERSTITIONS, OMENS AND BELIEFS IN AVIATION

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As in most professions that are considered to be relatively high-risk and require utmost responsibility, aviation specialists have some prejudices that might seem odd to the rest of mankind. I've gone through and made a list of the funniest and most unique aviation rituals and superstitions.

Many pilots and flight attendants believe in different signs before or during the flight. Like in many other professions where the difficulty of performance is often directly related to Mother Nature, a lot of superstitions are linked to weather conditions. For example, you shouldn't poke your finger at the sky, because it may bring about bad weather. In addition, if pilots want to compliment good weather conditions, they should address only to the sun, but not the weather itself [3].

One of the most commonly spread superstitions is that pilots never take a photo of themselves in front of an aircraft prior to the flight. They say so: a photo before the flight is a photo on the monument [4].

Obviously, there are some superstitions which are rife among aviation professionals only. For instance, scratching fuselage of a plane is believed to make aircraft performance more durable. If pilots encounter another airplane flying from an opposite direction during the flight, they consider it to be a bad sign. However, if there is an aircraft flying the same direction, they take it as a good luck sign [3].

It is not surprising nowadays to meet a woman pilot – it is not uncommon, but in the post-war years this profession was exclusively male, and women were not allowed to enter the cockpit, except as a guest. Flight attendants have their own very specific yet simple superstition – if the first passenger who goes aboard is a man the flight will be easy [1].

After the first solo departure, each pilot brings several packages of cigarettes to the airfield, and after the flight he treats all of these cigarettes. Student-pilot lay out 2-3 packs for general use in the smoking room, gives one pack to his instructor and other supervisors. On one of the packs pilot's friends write their signatures, sometimes brief wishes in memory of this significant day. In addition, cadets can sign cigarettes for the closest people after their first flight [1].

Another popular practice is when pilots smoke half-cigarettes before and finish smoking them after the flight. If a pilot happens to be a non-smoker, then he/she may take a bite of something and eat it up after the flight. But there are

also some 'local' superstitions, e.g. Russian pilots avoid using the word 'last' in relevance to any case. Instead, they prefer to say 'concluding' or 'ultimate'. They also use 'the second circle' term referring to any landing attempt (regardless whether it is truly the second or in fact already the fifth one) [3].

In military aviation there is a tradition - after the plane has just started moving from the parking lot, a technician should touch its wing. This tradition dates back to the Second World War, when a technician, feeling the vibration on the wing, could understand, whether the engine worked well or not [2].

Of course there are many flight crew members who are skeptical towards these and other superstitions. But even they sometimes succumb to certain traditions or rituals. For example, some pilots never write the destination in the logbook until they reach the airport. Some cannot handle waiting for the vacant lavatory in front of all passengers and thus monitor the bathroom door through a camera. And, of course, there are pilots who pee on a wheel to show that they have mastered the aircraft. In any case, aviation not unlike any other professions has its own traditions and beliefs which will always be followed, regardless of whether you are a superstitious person in general or not [3].

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GREENWASHING

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Most people try to eat healthier food, buy non-toxic materials children's toys, which do not affect the health of the child or use good cosmetics. The person buys a particular product and pays attention to what is written and depicted on the packaging. Unfortunately, not all information on the package is truthful. Mainly manufacturers, doesn't matter whether the food ones or children's products, building materials, household chemicals, and even

cosmetics ones so popular with consumers, give their products the status of "natural", "organic" etc. Most consumers are attracted to products by this label. A company that has been "greenwashed" may seem eco-friendly, but in reality, their concept of going green boils down to little more than a well-done marketing campaign.

Greenwashing is the practice of using advertising, labeling and other marketing strategies to trick eco-conscious consumers into believing that a service or product is greener than it actually is.

Greenwashing is a form of ecological marketing, the purpose of which is to stir up consumer confusion regarding the product, its properties, or to follow the goals and actions of the organization or the manufacturer, and finally to present their products in favorable environmental light. The term Greenwashing has been used for quite some time. For the first time this word was suggested by American biologist and environmentalist J. Westerveld in 1986.

Greenwashing is usually associated with marketing activities, which are based on demonstration of environmental friendliness, but not on the real practice of it. Once there was more private definition of greenwashing. A company spends a lot of time and money to show through marketing communications means that the product is environmentally friendly, instead of real environmental practices to mitigate the company's impact on the environment [1].

So the company provides a false representation of products to potential consumers. And this false representation about ecologically-friendly product is done very scrupulously, in a variety of ways. Like the following:

1) green packaging plus the phrase "phytotherapy", "natural", "therapeutic", etc. are associated with environmental friendliness and naturalness of the product;

2) when the packaging reads such words as natural, BIO, herbal, etc. As a matter of fact, this does not always mean that the product composition is 100% organic or natural;

3) very often focus is made on natural ingredients composition, when on the package the wording "herbal", "herbal cosmetics", "living cosmetics" are frequent;

4) due to the pseudo-certificate that the brand comes up and indicates on the package or what is worse — the use of illegal certificates of organic cosmetics.[4].

After having done some research of the greenwashing phenomenon the company Terra Choice identifies seven tricky points about it [1]:

1. Hidden trade-off: the product presents itself as environmentally friendly one on the basis of several advantages, but it masks important flaws.

2. No Proof: the product cannot be subjected to environmental certification by the third free party.

3. Vagueness: environmental marking is carried out due to very general statements. A good illustration of vagueness is the phrase "all natural" attracting your attention.

4. False Labeling: information, which product is referred to as environmentally friendly, may be completely true and accurate, but it is absolutely useless or untimely.

5. Lesser of two evils: the manufacturer can focus on the characteristics of his product compared to the similar ones meaning that it cannot be expected greener than its counterparts. But the environmental damage from this product is also great. For example, a sports car that consumes less fuel than its counterparts pollutes the environment as well.

6. Fibbing/False Claims: we must keep in mind that very often companies are simply deceiving. Often it occurs with the products that represent themselves as belonging to a particular class of energy efficiency.

7. Non-existent marking: the manufacturer puts on their product labeling indicating approval of environmental goods by a third party, despite the fact that such approval or third party does not exist [1].

How to identify greenwashing?

It is not so difficult. For this purpose:

- Before buying you should be familiar of environmental certification mark of your country to know the product if it is green.
- Secondly, almost all of us read newspapers and watch news on TV so we should keep any eye on our concerned companies if they are violating any environmental law.
- Besides we should also keep our ears open to word-of-mouth about such companies because public complain against any company is also a good criteria to examine the green credentials of a company.

The University of Oregon created a website (<http://www.greenwashingindex.com>) where users can report on cases of greenwashing that occur in everyday life.

As the false eco-labeling or creating the image of environmental- friendly product seems a big problem something should be done with it.

In a report submitted to Terra Choice certified marking, the presence of which with reasonable certainty can assume that the product is "green" is required.[2].

To protect consumers from poor quality products Terra Choice company offers:

- 1) to work out a health certification procedure;
- 2) to attract independent experts to assess the qualitative and quantitative characteristics of organic food;
- 3) to develop a program of eco-labeling.[3].

Provided the measures have been taken, the situation will be better.

In the end, there are a few positive points concerning people's care of the environment.

1. Every year is held a large-scale environmental event on the planet "Earth Hour". The aim of the campaign is attracting people to the problem of resource depletion. To do this, just turn off the lights and all appliances for an hour. This action has a high environmental significance.

2. Action "Cars free Day" held on September 22 in many countries. People move around the city by public transport, bicycles or on foot. For several years, this tradition has grown into an international event: once a year the inhabitants of hundreds of cities in dozens of countries around the world refuse to travel by car. But it turns out that many people, hoping that day to get to work quickly and without traffic jams, are disappointed. On this day the amount of cars and other means of transport are still huge.

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VENTILATION

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My speciality is connected with heat and gas supply and ventilation. These processes are very important and ensure a good life for people. In this article I would like to dwell on ventilation in order to deepen my knowledge in this field.

Ventilation is the process and practice of keeping an enclosed place supplied with proper air for breathing. People spend about 90% of their time

inside, that's why good ventilation is important because it helps protect your health and your home. Ventilation supplies fresh air to your home and dilutes or removes stale air [3].

There are many ways this can happen: opening windows to air out your home, turning on the fan over the kitchen range or in the bathroom, using chimneys and clothes dryer fans. Conditions such as the sour smell of garbage from a trash; a musty, gym-like smell coming from the bedroom walls; or mold or mildew in closets, or on ceilings or exterior walls; the condensation on the inside of your windows, irritation of your eyes, when you are at home may be signs of poor ventilation. It may be as simple as an overflowing garbage can or as complicated as mold growing inside walls. Whatever the case, you must identify the source before you can solve the problem. One of the easiest ways to improve indoor air quality is to remove or avoid using common sources of moisture, odors, and gases.

Almost all used in the construction of buildings and structures of air communication are hidden from prying eyes or in the thickness of the walls, or in the ventilation shafts or above suspended ceilings, when there is only visible rectangles (or fungi) ventilation grills. In fact, the large objects may be placed thousands of meters of various ducts, with large and very small diameters and cross-section. In addition to the air duct of the ventilation systems are used powerful channel and stationary fans, to ensure the inflow or pump the required volume of air. Unfortunately, at present the stationary ventilation installations are performed only abroad, as in Russia, the production capacity for this simply does not exist. And this is understandable – some of them are the size of a nice house, and usually set on the roofs of large buildings [2].

In general, the ventilation system can be divided into three main groups:

1. Supply ventilation
2. Exhaust ventilation
3. Fire ventilation (smoke).

Supply ventilation provides a supply of purified special filters the air in ventilated rooms. All air ducts are made of galvanized steel and outside turn into a thermal insulation material, preventing excessive cooling of the air in the premises. Additional insulation prevents the formation of condensation in the contact of warm and cold environments. The wiring and distribution of supply air in the interior provide ventilation sleeves, made of special corrugated pipes of the necessary diameter.

Exhaust ventilation is used to delete used in the premises of the air, which is already saturated with carbon dioxide.

To ensure the optimal balance of incoming and removed air shall apply the automatic valve system, in which, depending on their needs, can be regulated by the supply and removal of air [1, p. 23].

Fire ventilation, as a rule, is more complicated than supply and exhaust,

in view of the fact that its main function is to maximize long-term work in the conditions of the critical temperature. Used when the ducts are made of a special alloy in the form of welded baskets, with the minimum coefficient of thermal expansion. Valve systems of fire ventilation should provide high efficiency of absorption of products of combustion. However, they serve as the actual «alarm button» for systems and ventilation, immediately stopping their work, because the inflow of fresh air contributes to the strengthening of the combustion process [1, p. 30].

Understanding how air moves inside your home can help you avoid or fix such ventilation-related problems as excess moisture, back drafting, and radon. If the pressure inside is higher than outside, your home is under positive pressure, and air moves out of the house. Air moves into, out of, and around the inside of your home because of differences in air pressure. When the pressure inside your home is lower than it is outside, the house is under negative pressure. In this case, outdoor air, including that in the soil, moves into the house. When there is no difference between the indoor and outdoor pressure, the house is under neutral pressure. Air differences also control the way air moves, from room to room inside your home.

It can be concluded that ventilation is a complex process that requires careful study. I hope that I will be able to master the skills of my speciality and become a good specialist.

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И.О. Батин

ALEXANDER POPOW ALS ERFINDER DES RADIOGERÄTES

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Alexander Stepanowitsch Popow ist ein genialer Wissenschaftler und Erfinder, der das Radio erschaffen hat.

A.S. Popow wurde am 16. März 1859 im Ural geboren. 1883 graduierte er die Universität mit einem glänzenden Ergebnis und erhielt das Angebot, an der Minenschule für Offiziere in Kronstadt zu unterrichten, der einzigen Lehranstalt von damals, die professionelle Elektriker heranzubildete.

Neben der Lehrtätigkeit in Kronstadt übernahm er eine umfassende Forschungsarbeit auf dem Gebiet der Elektrotechnik. Um diese Zeit entdeckte

der deutsche Wissenschaftler Heinrich Hertz die Existenz elektromagnetischer Wellen und bewies ihre Verwandtschaft mit dem Licht.

A.S. Popow, dem diese Entdeckung von Heinrich Hertz interessant vorkam, machte sich mit der ihm typischen Energie an die detaillierte Erforschung der elektromagnetischen Wellen. A.S. Popow schätzte die praktische Bedeutung der Erforschung der elektromagnetischen Wellen ein. Das war eine völlig neue Idee, deren Umsetzung eine neue Ära in der Fernmeldetechnik – die Ära des Rundfunks – ins Leben rief.

A.S. Popow begann mit der technischen Verwirklichung dieser Idee. Endlich wurde das entsprechende Gerät gebaut. Nach einer Reihe von Versuchen erfand Popow Antenne und Erdung. A.S. Popow nannte das von ihm erfundene Gerät „Gewitterverzeichner“. Am 7. Mai 1895 berichtete A.S. Popow im überfüllten Saal bei einer Sitzung der Russischen Physikalisch-Chemischen Gesellschaft über die ersten Ergebnisse seiner Arbeit und demonstrierte das Radiogerät, das er konstruiert hatte. Er hoffte, dass sein Gerät in der Zukunft für die Fernübertragung von Signalen mit schnellen elektrischen Schwingungen eingesetzt werden kann [1].

Der Weg zur Erfindung des Radios war in der Wissenschaft lang. An diesem Problem haben viele Gelehrten in verschiedenen Ländern gearbeitet, z.B. Philipp Reis, Thomas Alva Edison. Etwas später auch im Jahr 1896 ließ der Wissenschaftler Guglielmo Marconi in England einen ähnlich funktionierenden Apparat patentieren. Da A.S. Popow das Radiogerät als Erster präsentiert hatte, gilt er als Erfinder des Radios.

A.S. Popow starb am 12. Januar 1906.

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ПРИНЦИПЫ ОРГАНИЗАЦИИ УЧЕБНОГО ПРОСТРАНСТВА

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Существуют разные формы организации учебного пространства. В данной статье будут рассмотрены три такие формы. Мы узнаем какие наиболее подходящие цвета можно использовать в оформлении классов и аудиторий. Также коснемся вопроса меблировки учебного помещения.

Традиционная форма, когда в середине учебной комнаты в ряд устанавливаются парты таким образом, чтобы все учащиеся были

обращены в сторону преподавателя. Обучение в таких условиях становится центрированным на учителе, а возможности обучения через дискуссию и диалог со сверстниками резко сокращаются. Обучение в таких условиях становится для учеников пассивным восприятием некоторого учебного материала, а активизации и вовлечения учеников в процесс обучения не происходит. Данная форма организации не очень подходит для обучения иностранным языкам.

Другие учебные пространства организуются по следующему принципу, обучающиеся собираются в группы в зависимости от проявленных способностей, знаний или навыков в тех или иных областях. Этот способ организации учебного пространства известен как «группирование учебных мест в зависимости от уровня способностей учащихся». Ученики или студенты при таком способе расположения парт не всегда все одновременно обращены в сторону преподавателя, а он имеет больше возможностей объяснять материал или проводить иную работу, передвигаясь по всему классу. И это является значительным преимуществом данного способа организации пространства класса. Когда преподаватель имеет возможность свободно двигаться по аудитории, студенты лучше вовлечены в обучение, а результаты обучения более эффективны. Учащиеся при таком способе расположения учебных мест могут видеть друг друга и лучше взаимодействовать во время обучения.

Так же учебная зона может быть организована по противоположному принципу, т.е. на основе смешанных групп. В таких группах студенты разные по интересам и способностям могут объединяться и учиться чему-то новому друг у друга. Роль преподавателя при такой расстановке меняется, он в большей мере начинает содействовать процессу обучения.

Важным фактором, который может либо способствовать обучению, либо затруднять его, является цвет. В настоящее время учеными делаются активные попытки использовать влияние цвета на психофизиологию человека в коммерческих и бытовых целях. При этом, как уже отмечалось, каждый человек воспринимает цвет по-своему. Поэтому при оформлении помещений стоит учитывать пол, возраст, профессию и т.д. людей, которые будут там находиться. При выборе цвета для помещения, нужно учитывать его размеры, количество окон, ориентацию по сторонам света, а также влияние каждого цвета на психику человека. В помещении с малым количеством окон необходимо использовать светлые пастельные тона, разрешается делать акценты, используя яркие насыщенные цвета в небольшом количестве. Также, такие помещения нуждаются в большом количестве осветительных приборов. В пространствах ориентированных на север, стоит использовать теплые тона, на юг – холодные. Итак, в учебных зонах чаще всего применяются нейтральные слабонасыщенные цвета: бежевый, синий, голубой, зеленый. Давно

замеченный факт, что синяя палитра цветов с желтыми акцентами усиливает восприятие человека. Желтый цвет помогает сосредоточиться, повышает творческую активность, поэтому его можно использовать для рабочего кабинета, только он не должен быть слишком ярким. Выбирая синий цвет как основной в рабочем пространстве, стоит отметить, что синий снижает остроту зрения. Чтобы глаза не уставали, нужно выбирать белый, желтоватый и зеленоватый цвета.

Композиция орнамента, характер узора, направленность линий, ритм и масштаб рисунка действуют на восприятие объема помещения. Высота помещения увеличивается при рисунке в виде вертикальных полос. Горизонтальные полосы, наоборот, снижают высоту. Правильные геометрические рисунки (ромбы, квадраты) делают объем статичным, в то время как диагональные полосы его дезорганизуют.

Мебель в учебной зоне может быть достаточно разнообразна. Зона аудитории, включающая удобный диван или другую мягкую мебель, может быть очень полезна для проведения неформального чтения, бесед, дискуссий. В аудитории могут быть небольшие настенные полки с необходимой дополнительной литературой или предметами, которые могут быть использованы на занятиях. Размещение в учебных аудиториях шкафов и стеллажей запрещено по правилам пожарной безопасности.

Все эти приемы я использовала при создании нового дизайна 501 аудитории, в которой проходят занятия по английскому языку.

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DER BERUF DES INGENIEURS

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Der Ingenieur ist die Berufs- bzw. Standesbezeichnung für Fachleute auf dem Gebiet der Technik. Die Ausbildung zum Ingenieur ist in den Ländern Europas teilweise sehr unterschiedlich geregelt.

In Deutschland, Österreich und der Schweiz werden Ingenieure an den Technischen Universitäten und Hochschulen ausgebildet. In Deutschland wird dabei ein duales System verwendet.

Die akademischen Hochschulgrade für Ingenieure nach dem europäischen Bologna-Prozess sind der Bachelor of Science (abgekürzt: B.Sc.) bzw. Bachelor of Engineering (abgekürzt: B.Eng.) und der darauf aufbauende Master of Science (abgekürzt: M.Sc.) bzw. Master of Engineering (abgekürzt: M.Eng.), die den bisherigen akademischen Grad Diplom-Ingenieur ersetzen. Der Mastergrad öffnet den Weg für die Promotion zum Doktor der Ingenieurwissenschaften (abgekürzt: Dr. Ing.).

Das Wort „Ingenieur“ ist lateinischer Herkunft. Das lateinische Wort *ingenium* heißt „sinnreiche Erfindung“ oder „Scharfsinn“. Das davon abstammende italienische Wort *ingegnere* (d.h. „Zeugmeister“, „Kriegsbaumeister“) wurde im Mittelalter nur im Zusammenhang mit Kriegstechnik und im Deutschen als ebenso einschränkendes Lehnwort *Ingenieur* gebraucht. Erst im 17. Jahrhundert bedeutete das französische Wort *ingénieur* „Fachmann auf technischem Gebiet mit theoretischer Ausbildung“. Es kam im 18. Jahrhundert von dort erneut als Lehnwort *Ingenieur* ins Deutsche, jetzt aber in der allgemeineren französischen Bedeutung [1].

Seit dem Dreißigjährigen Krieg wurde in vielen Heeren Europas eine Gruppe technischer Fachleute rekrutiert und als mehr oder weniger eigenständige permanente Formation in die Hierarchie der Armee integriert. Es entstanden Artillerie- und Ingenieurkorps [1]. Später wurde das Arbeitsgebiet dieser Ingenieure auch in der Militärtechnik, im Zivildbauwesen und dem Bergbau erweitert.

Die guten Jobaussichten und das Ingenieur-Gehalt sind nicht allein die Gründe dafür, warum man den Beruf des Ingenieurs wählt. Der Ingenieur soll kreativ sein. Er setzt sich für die Optimierung von Prozessen auseinander. Es ist wichtig, dass man Leidenschaft für sein zukünftiges Tätigkeitsfeld mitbringt. Ein Ingenieur arbeitet an verschiedenen Fachbereichen und benötigt dabei nicht nur fachspezifisches, sondern vor allem auch interdisziplinäres Wissen. Ein guter Ingenieur nicht nur arbeitet, sondern auch lernt sein Berufs-Leben lang.

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GREEN VEHICLES

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Since the dawn of time transportation has always been important. In recent decades personal transportation has become more prevalent and absolutely necessary. There are many people who rely on public transportation, and in crowded cities with limited parking taxis are very popular. But for those in the suburbs and small towns having their own car means freedom and independence so they consider their car an essential part of everyday life.

However, cars are major polluters and cause damage to our natural environment. The environmental impact of transport is significant because it is a main user of energy, and burns most of the world's petroleum. This creates air pollution, including nitrous oxides and particulates, and is a significant contributor to global warming through emission of carbon dioxide. It is necessary to make it more precise that most cars have a typical combustion engine that burns fuel for energy which results in the production of a wide variety of harmful chemicals like carbon dioxide, volatile organic compounds and particulate matter. Additionally, cars require several liquids to run that are toxic to people, animals and plants.

That is why nowadays green cars are intensively being developed, for that simple reason that they are considered to be environmentally friendly and have less of a damaging impact on the environment than conventional cars. Green cars consume less petroleum than conventional cars or uses renewable energy sources to fuel its engine.

Basically, green vehicles are more eco-friendly versions of conventional petroleum-powered cars, buses and trucks. At the moment, green vehicles are far from perfect, but they consume less energy in their lifetime than standard motor vehicles and cut down on the release of some of the air pollutants that are damaging our planet.

There are a number of ways in which some cars can be said to be greener than others. Some may run on renewable biofuel instead of traditional petroleum products. Other green cars benefit from improved conventional engine designs, and can run on a combination of petrol or diesel and environmentally friendly ethanol. Some green vehicles have solar panels on their roofs and get all their energy needs from the sun. Many green vehicles are run at least partially on electricity, and current green technology developments are resulting in more green cars being launched which are run solely on electric powered engines.

There are a number of green cars available today such as electric cars, hybrid cars, hydrogen cars and solar cars.

Let's have a look at each of the types of green vehicles.

Speaking about **electric cars**, they use an electric motor instead of internal combustion engines which is what most conventional cars use for power. They store chemical energy in rechargeable battery packs and are more energy efficient than most conventional cars that use internal combustion engines. More than that they do not produce any exhaust and noxious fumes and many electric cars have regenerative braking, which means that when the car brakes, the battery is partially recharged. This also reduces wear on the brakes. Besides, many electric cars can travel hundreds of miles without the need to recharge the battery packs.

However, electric cars have some limitations. For example, travel distance between battery recharging is limited. This travel time depends on the driver's performance, the shape and weight of the car and the type of battery used. Although these drawbacks can be seen with electric cars, new technologies are producing batteries with a longer lifespan and reduced recharging time. Even some car hire providers are investing in electric cars by adding them to their fleet, which shows how companies see a future in electric vehicles. Nowadays researchers are working on improved battery technologies to increase driving range and reduce charging time, weight, and cost. These factors will ultimately determine the future of electric cars.

Despite the fact that it's only in the last few years that electric cars have been taken seriously by the motoring public, in fact they have been around for just as long – if not longer – than those powered by petrol and diesel. Electric cars are getting better and better very quickly. There is a list of some best models. The Renault ZOE is one of the least expensive EVs on the market, although there's a monthly charge for battery rental to be factored in. It's a small hatchback, a little larger than the Renault Clio on which it's based, and makes a very practical car around town, with a big 338-litre boot.

The Hyundai Ioniq is something of a unique proposition. It's the only car to come with a choice of three different electrified powertrains. There's the hybrid, the plug-in hybrid and the one we're interested in here, the electric version. It's impressively nippy, managing 0-62mph in 9.9 seconds thanks to its 118bhp electric motor.

The Tesla Model S can probably take more credit for making electric cars an exciting idea than any other vehicle. Although it's not as futuristically styled as some, it's still extremely attractive – despite a 2016 facelift that removed the faux front grille. The Model S is a premium-priced product that has gained a very favourable image and a loyal following, despite prices exceeding the BMW 5 Series and Mercedes E-Class, which match it for size and beat it for interior quality.

A hybrid car is the next type of environmentally-friendly cars and uses both an electric motor and an internal combustion engine to power the vehicle. These cars use petrol or diesel to power internal combustion engines and use

electric batteries to power electric motors. They consume less petroleum than conventional cars and therefore produce less pollution. Besides, they are much quieter than conventional vehicles.

However, there are some drawbacks of hybrid cars such as at first, some hybrid cars are designed to have a power boost which means there would be no benefit to the environment or running cost; at second, hybrid cars are generally more complex than conventional cars; this may result in increased repair costs; at third, such cars may be more expensive to purchase than conventional ones.

Everyone from Toyota to Porsche sells hybrid cars these days. A list of best models includes 1. the Toyota Yaris is a small, roomy supermini that's supposed to rival models such as the Ford Fiesta and Volkswagen Polo. The Toyota Yaris is a sensible choice, with affordable running costs, a strong reliability record, lots of safety equipment, and a practical and spacious cabin for carrying people or luggage; 2. The Passat GTE is a convincing plug-in hybrid family car. Like other plug-in hybrid models, the Passat GTE has a short electric-drive range of around 25-31 miles, while the car has driving modes that allow you to store the battery energy for a later time, or even charge the battery on the move, although this latter option does seriously compromise fuel economy; 3. BMWs i3 is available as a full electric car but also as a range extender hybrid offering increased range and versatility.

Hydrogen cars also can be of great value and importance for our environment but they are not a huge success at the moment and only a few hydrogen cars have been produced so far. They use hydrogen as the primary source of power opposed to petrol. There are two ways in which hydrogen can be used to power a vehicle: 1. Combustion conversion; hydrogen is burned in engines in much the same way as conventional cars. 2. Fuel-cell conversion; fuel cells turn the hydrogen into electricity to power internal electric motors.

No doubt, hydrogen cars have many benefits to the environment, for example, these cars use oxygen from the air and hydrogen as a power source, this produces water vapour which is better for the surrounding environment; hydrogen is produced at centralized power plants where the by-products of burning fossil fuels can be better controlled; and one more plus is that it may also be possible to produce hydrogen from renewable energy sources, this means that there would be no increase in carbon dioxide emissions.

But if there are pluses, minuses exist as well. There are many drawbacks to hydrogen cars, which is why they have not made it onto the market as of yet. It will be many years before these challenges are overcome. First of all, they are expensive to produce. At second, they have high running costs and low energy efficiency. And the main problem is that there is few hydrogen refueling stations. And these technical challenges are unlikely to be solved for several decades. As of 2016, there are 3 hydrogen cars publicly available in select

markets; the Toyota Mirai, the Hyundai ix35 FCEV, and the Honda Clarity. Several other companies are working to develop hydrogen cars.

The last type of eco-friendly green cars is **solar cars**.

A solar car uses solar energy to power the vehicle. It obtains solar energy by using solar panels on the surface of the car and converts it into electrical energy. Solar cars combine technology typically used in the aerospace, bicycle, alternative energy and automotive industries. The design of a solar vehicle is severely limited by the amount of energy input into the car. Solar cars depend on a solar array that uses photovoltaic cells (PV cells) to convert sunlight into electricity. Unlike solar thermal energy which converts solar energy to heat for either household purposes, industrial purposes or to be converted to electricity, PV cells directly convert sunlight into electricity. When sunlight (photons) strike PV cells, they excite electrons and allow them to flow, creating an electric current. PV cells are made of semiconductor materials such as silicon and alloys of indium, gallium and nitrogen. Crystalline silicon is the most common material used and has an efficiency rate of 15-20%. The first solar family car was built in 2013. Researchers at Case Western Reserve University, have also developed a better solar car which can recharge more quickly, due to better materials used in the solar panels.

There are tremendous benefits of solar cars to the environment such as absence of exhaust fumes; absence of release of greenhouse or noxious gases, reducing global warming and improving human health; they are quieter than conventional cars; as they run on sunlight, there is no fuel cost.

However, solar cars are yet to make it into the market as practical transportation for many reasons: they can only travel a limited distance without the sun, which could be problematic on cloudy days and at night; solar cells are very fragile and can be easily damaged; solar cars are built for function not comfort and can usually only fit one or two people.

To sum up, there is a wide range of green cars available on the market and they are becoming more popular as we realize the need for greener cars. Each car has its own advantages and disadvantages, different fuel efficiency. One of the most important features of these cars is that the better the fuel efficiency the more environmentally friendly it is likely to be.

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RENEWABLE ENERGY TYPES

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Renewable energy is energy that is generated from natural processes that are continuously replenished. This includes sunlight, geothermal heat, wind, tides, water, and various forms of biomass. This energy cannot be exhausted and is constantly renewed.

Alternative energy is a term used for an energy source that is an alternative to using fossil fuels. Generally, it indicates energies that are non-traditional and have low environmental impact. The term alternative is used to contrast with fossil fuels according to some sources. By most definitions alternative energy doesn't harm the environment, a distinction which separates it from renewable energy which may or may not have significant environmental impact.

Renewable energy resources and significant opportunities for energy efficiency exist over wide geographical areas, in contrast to other energy sources which are concentrated in a limited number of countries. Rapid deployment of renewable energy and energy efficiency, and technological diversification of energy sources, would result in significant energy security and economic benefits. It would also reduce environmental pollution such as air pollution caused by burning of fossil fuels and improve public health, reduce premature mortalities due to pollution and save associated health costs. Renewable energy sources, that derive their energy from the sun, either directly or indirectly, such as hydro and wind, are expected to be capable of supplying humanity energy for almost another 1 billion years, at which point the predicted increase in heat from the sun is expected to make the surface of the earth too hot for liquid water to exist.

Climate change and global warming concerns, coupled with high oil prices, peak oil, and increasing government support, are driving increasing renewable energy legislation, incentives and commercialization. New government spending, regulation and policies helped the industry weather the global financial crisis better than many other sectors. According to a 2011 projection

by the International Energy Agency, solar power generators may produce most of the world's electricity within 50 years, reducing the emissions of greenhouse gases that harm the environment.

Most renewable energy comes either directly or indirectly from the sun. Sunlight, or **solar energy**, can be used directly for heating and lighting homes and other buildings, for generating electricity, and for hot water heating, solar cooling, and a variety of commercial and industrial uses.

Solar power is produced by collecting sunlight and converting it into electricity. This is done by using solar panels, which are large flat panels made up of many individual solar cells. It is most often used in remote locations, although it is becoming more popular in urban areas as well. This page contains articles that explore advances in solar energy technology.

It is important to point out that sunlight received by earth in one hour is enough to meet the annual energy needs of all people worldwide. Solar is a safe alternative which can replace current fossil fuels like coal and gas for generation of electricity that produce air, water, and land pollution. World Wide Fund For Nature, also known as the World Wildlife Fund (WWF), notes that electricity generation from fossil fuels causes pollution of air leading to acid rain, damaged forest areas, and affected agricultural production leading to loss of billions of dollars worldwide.

Solar energy is suitable for heating and electricity generation using photovoltaic cells installed on roof-tops of individual buildings. This is useful as decentralized sources of electricity for households and commercial businesses, according to U.S. Energy Information Administration (EIA). Solar water heating and passive solar designing of buildings to cool or heat space are other solar technologies available for individual buildings according to National Renewable Energy Laboratory.

Medium-sized systems for community level power generation are also becoming popular. The Office of Energy Efficiency and Renewable Energy (Energy.gov) analysis stated that 13 states in U.S. installed 100 megawatts (MW) in 2015 alone, and residential units reached 2 gigawatts. Community solar installations of 100 MW were installed in 2010–2015. These installations are important to keep communities running at a lower cost for everyone.

Production of energy from solar has been doubling every twenty months since 2010. By 2050, Greenpeace Energy Evolution visualizes energy being produced 100% by renewables, wherein solar power's contribution will be 32%. The importance of solar energy is sure to play a big role in saving the environment, helping people socially and economically, and creating jobs and research.

The next renewable energy type is **wind power**, the use of air flow through wind turbines to mechanically power generators for electric power. Wind power, as an alternative to burning fossil fuels, is plentiful, renewable, widely

distributed, clean, produces no greenhouse gas emissions during operation, consumes no water, and uses little land. The net effects on the environment are far less problematic than those of nonrenewable power sources.

Wind is the movement of air from an area of high pressure to an area of low pressure. In fact, wind exists because the sun unevenly heats the surface of the Earth. As hot air rises, cooler air moves in to fill the void. As long as the sun shines, the wind will blow. And wind has long served as a power source to humans.

Ancient mariners used sails to capture the wind. Farmers once used windmills to grind their grains and pump water. Today, more and more wind turbines wring electricity from the breeze. Over the past decade, wind turbine use has increased more than 25 percent per year. Still, it only provides a small fraction of the world's energy.

Globally, the long-term technical potential of wind energy is believed to be five times total current global energy production, or 40 times current electricity demand, assuming all practical barriers needed were overcome. This would require wind turbines to be installed over large areas, particularly in areas of higher wind resources, such as offshore. As offshore wind speeds average ~90% greater than that of land, so offshore resources can contribute substantially more energy than land stationed turbines. In 2014 global wind generation was 706 terawatt-hours or 3% of the world's total electricity.

Wind is a clean source of renewable energy that produces no air or water pollution. And since the wind is free, operational costs are nearly zero once a turbine is erected. Mass production and technology advances are making turbines cheaper, and many governments offer tax incentives to spur wind-energy development.

Drawbacks include complaints from locals that wind turbines are ugly and noisy. The slowly rotating blades can also kill birds and bats, but not nearly as many as cars, power lines, and high-rise buildings do. The wind is also variable: If it's not blowing, there's no electricity generated.

Nevertheless, the wind energy industry is booming. Thanks to global efforts to combat climate change, such as the Paris Agreement, renewable energy is seeing a boom in growth, with wind energy leading the way. From 2000 to 2015, cumulative wind capacity around the world increased from 17,000 megawatts to more than 430,000 megawatts. In 2015, China also surpassed the EU in the number of installed wind turbines and continues to lead installation efforts.

Industry experts predict that if this pace of growth continues, by 2050 one third of the world's electricity needs will be fulfilled by wind power.

It is necessary to pay attention to one of the greatest renewable energy types such as **hydroelectric power or hydropower**. Flowing water creates energy that can be captured and turned into electricity.

Hydropower is electricity generated using the energy of moving water. Rain or melted snow, usually originating in hills and mountains, create streams and rivers that eventually run to the ocean. The energy of that moving water can be substantial, as anyone who has been whitewater rafting knows.

Humans have been taking advantage of this source of energy for centuries. Farmers since the ancient Greeks have used water wheels to grind wheat into flour. Placed in a river, a water wheel picks up flowing water in buckets located around the wheel. The kinetic energy of the flowing river turns the wheel and is converted into mechanical energy that runs the mill.

Hydropower is a mature and cost-competitive renewable energy source. It plays an important role in today's electricity mix, contributing to more than 16% of electricity generation worldwide and about 85% of global renewable electricity.

As for hydropower technologies, there are three types of plants.

Run-of-river hydropower plant harness energy for electricity production mainly from the available flow of the river. These plants may include short-term storage or "pondage", allowing for some hourly or daily flexibility in adapting to the load demand profile, but the generation profile is mostly driven by natural river flow conditions or releases from any upstream reservoir hydropower plant (HPP). In the absence of such upstream reservoir HPP, generation depends on precipitation and runoff, and normally has substantial daily, monthly, seasonal and yearly variations.

Reservoir hydropower plant relies on stored water in a reservoir. This provides the flexibility to generate electricity on demand, and reduces dependence on the variability of inflows. Very large reservoirs can retain months or even years of average inflows and can also provide flood protection and irrigation services. The design of the hydro plant is very much dependant on the environment and social needs of the region and local project conditions. Most reservoirs are artificially created by building a dam to control the natural river flow. When local conditions allow, natural lakes can also function as reservoirs.

Pumped storage plants (PSPs) use water that is pumped from a lower reservoir into an upper reservoir when electricity supply exceeds demand or can be generated at low cost. When demand exceeds instantaneous electricity generation and electricity has a high value, water is released to flow back from the upper reservoir through turbines to generate electricity. Pumped storage plants take energy from the grid to lift the water up, then return most of it later (round-trip efficiency being 70% to 85%). Hence, PSP is a net consumer of electricity but provides for effective electricity storage. Pumped storage currently represents 99% of on-grid electricity storage.

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GEOTHERMAL ENERGY: PROS AND CONS

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Heat from the earth can be used as an energy source in many ways from large and complex power stations to small and relatively simple pumping systems. This heat energy known as geothermal energy can be found almost anywhere as far away as remote deep wells in Indonesia and as close as the dirt in our backyards.

It is necessary to say that many regions of the world are already tapping geothermal energy as an affordable and sustainable solution to reducing dependence on fossil fuels, and the global warming and public health risks that result from their use. For example, as of 2013 more than 11,700 megawatts (MW) of large, utility-scale geothermal capacity was in operation globally with another 11,700 MW in planned capacity additions on the way. These geothermal facilities produced approximately 68 billion kilowatt-hours of electricity, enough to meet the annual needs of more than 6 million typical U.S. households. Geothermal plants account for more than 25 percent of the electricity produced in both Iceland and El Salvador.

Almost everywhere the shallow ground or upper 10 feet of the Earth's surface maintains a nearly constant temperature between 50° and 60°F (10° and 16°C). Geothermal heat pumps can tap into this resource to heat and cool buildings. A geothermal heat pump system consists of a heat pump, an air delivery system (ductwork), and a heat exchanger – a system of pipes buried in the shallow ground near the building. In the winter the heat pump removes heat from the heat exchanger and pumps it into the indoor air delivery system. In the summer the process is reversed, and the heat pump moves heat from the indoor air into the heat exchanger. The heat removed from the indoor air during the summer can also be used to provide a free source of hot water.

Earth's internal heat is thermal energy generated from radioactive decay and continual heat loss from Earth's formation. Temperatures at the core-mantle boundary may reach over 4000 °C (7,200 °F). The high temperature and pressure in Earth's interior cause some rock to melt and solid mantle to behave

plastically, resulting in portions of mantle converting upward since it is lighter than the surrounding rock. Rock and water is heated in the crust, sometimes up to 370 °C (700 °F).

It is a well-known fact that geothermal power is cost-effective, reliable, sustainable and environmentally friendly, but has historically been limited to areas near tectonic plate boundaries. Recent technological advances have dramatically expanded the range and size of viable resources, especially for applications such as home heating, opening a potential for widespread exploitation. Geothermal wells release greenhouse gases trapped deep within the earth, but these emissions are much lower per energy unit than those of fossil fuels. As a result, geothermal power has the potential to help mitigate global warming if widely deployed in place of fossil fuels.

The Earth's geothermal resources are theoretically more than adequate to supply humanity's energy needs, but only a very small fraction may be profitably exploited. Drilling and exploration for deep resources is very expensive. Forecasts for the future of geothermal power depend on assumptions about technology, energy prices, subsidies, plate boundary movement and interest rates. Pilot programs like EWEB's customer opt in Green Power Program show that customers would be willing to pay a little more for a renewable energy source like geothermal. But as a result of government assisted research and industry experience, the cost of generating geothermal power has decreased by 25% over the past two decades. In 2001, geothermal energy costs between two and ten US cents per kWh.

Below Earth's crust, there is a layer of hot and molten rock called magma. Heat is continually produced in this layer mostly from the decay of naturally radioactive materials such as uranium and potassium. The amount of heat within 10,000 meters (about 33,000 feet) of Earth's surface contains 50,000 times more energy than all the oil and natural gas resources in the world.

The areas with the highest underground temperatures are in regions with active or geologically young volcanoes. These "hot spots" occur at tectonic plate boundaries or at places where the crust is thin enough to let the heat through. The Pacific Rim often called the Ring of Fire for its many volcanoes has many hot spots including some in Alaska, California and Oregon. Nevada has hundreds of hot spots, covering much of the northern part of the state.

These regions are also seismically active. Earthquakes and magma movement break up the rock covering, allowing water to circulate. As the water rises to the surface, natural hot springs and geysers occur, such as Old Faithful at Yellowstone National Park. The water in these systems can be more than 200°C (430°F).

Seismically active hotspots are not the only places where geothermal energy can be found. There is a steady supply of milder heat useful for direct heating purposes at depths of anywhere from 10 to a few hundred feet below the

surface virtually in any location on Earth. Even the ground below your own backyard or local school has enough heat to control the climate in your home or other buildings in the community. In addition, there is a vast amount of heat energy available from dry rock formations very deep below the surface (4–10 km). Using the emerging technology known as Enhanced Geothermal Systems (EGS), we may be able to capture this heat for electricity production on a much larger scale than conventional technologies currently allow. While still primarily in the development phase, the first demonstration EGS projects provided electricity to grids in the United States and Australia in 2013.

If the full economic potential of geothermal resources can be realized, they would represent an enormous source of electricity production capacity. In 2012, the U.S. National Renewable Energy Laboratory (NREL) found that conventional geothermal sources (hydrothermal) in 13 states have a potential capacity of 38,000 MW, which could produce 308 million MWh of electricity annually.

State and federal policies are likely to spur developers to tap some of this potential in the next few years. The Geothermal Energy Association estimates that 125 projects now under development around the country could provide up to 2,500 megawatts of new capacity.

As EGS technologies improve and become competitive, even more of the largely untapped geothermal resource could be developed. The NREL study found that hot dry rock resources could provide another 4 million MW of capacity, which is equivalent to more than all of today's U.S. electricity needs.

Not only do geothermal resources in the United States offer great potential, they can also provide continuous baseload electricity. According to NREL, the capacity factors of geothermal plants – a measure of the ratio of the actual electricity generated over time compared to what would be produced if the plant was running nonstop for that period – are comparable with those of coal and nuclear power. With the combination of both the size of the resource base and its consistency, geothermal can play an indispensable role in a cleaner, more sustainable power system.

Pros of Geothermal Energy

1. Renewable Source

Geothermal energy is extracted from earth's core and will be available as long as earth exists. It is therefore renewable and can be used for roughly another 4-5 billion years. While fossil fuels have an expiry date, renewable sources like geothermal energy is not going to expire anytime soon.

2. Environment Friendly

Geothermal energy is green in all aspects of its production and use. It is actually known for having the least impact of any power source. When it comes to the process of developing and making it, geothermal power is practically completely emission free. There is absolutely zero carbon used when it comes to

the production of this type of power. Also, the whole procedure can clean out sulphur that may have generally been discharged from other processes.

3. No Fuel Needed

No fuel is used at all during the production and use of the energy. There is absolutely no mining or transportation related to the process, which means that there aren't trucks emitting fumes and gas, which means that the atmosphere is not being as affected by the process.

4. Abundant Supply

With geothermal energy, there are no shortages or other sorts of problems that sometimes occur with other types of power. They are not subject to the same issues as solar or wind power, which means that you won't get a shortage because the weather isn't cooperating with what you want. There is a practically boundless supply. It is also intrinsically basic and dependable, so you don't have to worry about it being more of a hassle than it is actually worth.

5. Significant Savings for Home Owners

There has been a tremendous increase in the number of homeowners who want to utilize geothermal energy for heating and cooling purposes. The result is that less energy is used for heating homes and offices which results in significant savings for home owners. It might prove expensive initially but 30-60% savings on heating and 25-50% savings on cooling can cover that cost within few years. A geothermal heat pump can help you save enough money in energy costs.

6. Smallest Land Footprint

Geothermal energy extracts heat from hot water, the steam from hot water move the turbines that produce electricity. To extract this energy, substantial amount of piping is required to be laid underground. But, thanks to new innovation in the field of technology, geothermal energy has the smallest land footprint of any major energy source in the world. The costs are very competitive. As of now, geothermal energy is quite cost aggressive in a few areas where it is being produced, so you want to keep an eye on how much it is changing the world of energy in the areas where it is located.

7. Innovation in Technology

When it comes to green energy, geothermal energy is one of the first types that is being explored. New innovations are coming out for it all of the time, which means that it will likely be easier to deal with some of the difficulties with the technology as time goes on. It can also be manufactured underground. New innovations that are coming out are basically guaranteed to be able to use lower temperatures in future iterations of the technology as well.

Cons of Geothermal Energy

1. Suitable to Particular Region

Everything that deals with geothermal power seems to be really far away from well, everything that is in and around the area. Prime destinations are

exceptionally zone specific, so you can't really find geothermal power outside of those areas. Also, the prime destinations are frequently a long way from urban areas, which means that they're virtually useless when it comes to cities and such.

2. High Initial Costs

For those residential owners who are thinking to use geothermal energy, high upfront costs is something that turns out to be a huge setback to them. For an average sized home, installation of geothermal heat pumps costs from \$10,000 – \$20,000 that can pay off itself in another 5-10 years down the line through significant cost savings.

3. Cost of Powering the Pump

Geothermal heat pumps still needs a power source that can run it. The pumps needs electricity to run that can transfer energy from earth's core to the home. For a homeowner who is planning to go green can use few solar panels that can power heat pump to draw energy from the earth's reservoir.

4. Surface Instability

Geothermal has become infamous for causing earthquakes as setting up of geothermal power plants can alter the land's structure. A process called hydraulic fracturing is an integral part for building a large scale and efficient geothermal system power plants that can trigger earthquakes.

5. Environmental Concerns

There are some environmental concerns. Water use is one of the big concerns, because geothermal power uses a lot of water in its processes and such. There are also a number of different compounds that go into the air, water, and ground as a result of the process, including sulfur dioxide and silica discharges, both of which can harm the environment if you aren't careful about it. Sometimes, you have to deal with some technical difficulties as a result of the way that geothermal power is used. Misfortunes can occur because of how far the power has to travel, and mistakes can occur sometimes that make it difficult for the energy to get to people in an efficient manner.

6. High Temperatures Needed

The process is not exactly an easy one for you to execute. Boring into warmed rock is extremely troublesome. In order for geothermal processes to begin, you also need the area in question to be at least 350 degrees Fahrenheit; otherwise the processes may not occur as you wish them to.

7. May Run Out of Steam

You have to be incredibly careful when you are trying to check everything that is related to geothermal energy. Mind must be taken to watch the heat and not to abuse it, because if the heat is not taken care of properly, it can cause a meltdown or other issues where the energy is not properly distributed or used.

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ОСОБЕННОСТИ АРХИТЕКТУРЫ КЛАССИЦИЗМА АНГЛИИ

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Классицизм (фр. classicisme, от лат. classicus – образцовый) – художественный стиль и эстетическое направление в европейском искусстве конца XVII – начала XIX вв. [1].

Идеи рационализма лежат в основе классицизма и исходят из философии Декарта. С точки зрения классицизма художественное произведение должно создаваться на основании строгих канонов, обнаруживая стройность и логичность самого мироздания. У классицизма может вызывать интерес только что-то неизменное и вечное. Он не берет во внимание случайные индивидуальные признаки, а распознает только суть и главные типологические черты. Искусство имеет общественно-воспитательную функцию, которую хорошо дополняет и придает значение эстетика классицизма. Большое количество правил и канонов классицизм заимствует у античного искусства (Аристотель, Платон, Гораций).

В архитектуре под классицизмом понимают архитектурный стиль, распространенный в Европе в XVIII — начале XIX века, главной чертой которого было обращение к формам античного зодчества как к эталону гармонии, простоты, строгости, логической ясности, монументальности и обоснованности наполнения пространства. Архитектуре классицизма в целом присуща регулярность планировки и четкость объемной формы. Основой архитектурного языка классицизма стал ордер, в пропорциях и формах близкий к античности, симметрично-осевые композиции, сдержанность декоративного убранства, регулярная система планировки городов [1].

Классицизм получил широкое распространение в ряде европейских стран, таких как Голландия, Франция, Англия. Наиболее яркое и

интересное развитие данного стиля происходило непосредственно в Англии. В результате Английской буржуазной революции 1642-1648 гг. буржуазия и образовавшаяся новая аристократия заняли господствующее положение в стране. В Англии в это время активно развивалась промышленность в сельской местности, а в особенности- обработка шерсти, центром в которой было жилое поместье. Это не содействовало развитию английских городов. Лондон был единственным городом в XVII в., в котором происходили какие-либо градостроительные мероприятия [2].

Восходящая буржуазия вела борьбу за устойчивый рынок, расширение производительных сил и была заинтересована в централизации и национальном объединении государств. Являясь противником сословных неравенств, ущемлявших интересы буржуазии, ее идеологи выдвигают теорию рационально организованного государства, основанного на подчинении ему интересов сословий. Признание разума как основы организации государственной и общественной жизни подкрепляется доводами научного прогресса, чему всеми средствами способствует буржуазия. Этот рационалистический подход к оценке действительности переносился и на область искусства, где важной темой становится идеал гражданственности и торжество разума над стихийными силами. Религиозная идеология все более подчиняется светской власти. Образец гармонического общественного устройства приверженцы классицизма видели в античном мире, и поэтому для выражения своих общественно-этических и эстетических идеалов они обращались к примерам античной классики (отсюда и термин «классицизм»). Развивая традиции Возрождения, классицизм многое взял и от наследия барокко [3].

Творческое и теоретическое наследие Палладио, возродившего античное наследие во всей его широте и тектонической целостности, особенно импонировало классицистам. Именно поэтому классицизм в Англии получил свое название «палладианский классицизм». И ярким представителем, и основоположником нового направления стал архитектор Иниго Джонс. Он был высокообразованным архитектором и долгое время жил в Италии, где занимался изучением итальянской архитектуры. Джонс был ярым поклонником творчества Палладио и выступил с идеей взять за основу и перенести классический стиль работ итальянского мастера в английскую архитектуру [4]. Ему принадлежат наиболее выдающиеся произведения английского классицизма XVII века.

Выдающееся произведение Джонса – это Куинс-хаус (Queen's House, Дом королевы) в Гринвиче. В Куинс-хаусе архитектор последовательно развивает палладианские принципы четкости и классической ясности ордерных членений, видимой конструктивности форм, уравновешенности пропорционального строя. Общие сочетания и отдельные формы здания по-классически геометричны и рациональны. В композиции преобладает

спокойная, метрически расчлененная стена, построенная в соответствии с ордером, соразмерным с масштабом человека. Во всем господствуют равновесие и гармония. В плане наблюдается та же четкость членения интерьера на простые уравновешенные пространства помещений [1].

Это дошедшее до нас произведение Джонса не имеет precedентов по своей простоте и строгости, резко контрастирующее с предшествовавшими постройками. Однако, здание не стоит оценивать по его современному состоянию, как это часто делается в действительности. По приказу королевы Анны, жены Якова I Стюарта, дом был построен прямо на старой Дуврской дороге. По длинным колоннадам, примыкающим с обеих сторон к зданию, можно проследить расположение этой дороги. Изначально дом был разделен дорогой на два корпуса, которые соединялись между собой крытым мостиком. Сложность композиции придавала когда-то зданию более живописный, «английский» характер, подчеркнутый вертикалями собранных в традиционные пучки дымовых труб [1]. Просвет между корпусами был застроен в 1662 году после смерти архитектора. В итоге получился квадратный в плане компактный и суховатый по архитектуре объем с украшенной колоннами лоджией со стороны Гринвичского холма, с террасой и лестницей, ведущей к двухсветному холлу, – со стороны Темзы [1].

Другим ярким произведением архитектора является **Банкетинг-хаус в Лондоне (Banqueting House, Банкетный зал)**. По благородной торжественности и последовательно проведенной во всей композиции ордерной структуре он не имел предшественников в Англии. Вместе с тем, по своему общественному содержанию это исконный тип сооружения, проходящий сквозь английскую архитектуру начиная с XI века [1]. Главный фасад представляет собой композицию из двухъярусных ордеров, внизу располагается ионический ордер, а наверху-композитный. За ними кроется двухсветный зал, обрамленный по периметру балконом, таким образом осуществляется логическая связь внешнего вида здания с его интерьером. Но здесь видны существенные отличия от палладианского классицизма: оба яруса одинаковой высоты, окна имеют небольшое заглубление и большую площадь застекления. Это связано с распространением фахверкового строительства. Все эти приемы лишают стену пластичности, которая встречается у итальянских прототипов, тем самым придавая ей национальные английские черты. Плоские потолки английских дворцов того времени декорировались легкими рельефами из филенок, тогда как зал Банкетинг-хауса имеет роскошный потолок с глубокими кессонами, который позднее был расписан Рубенсом [1].

Тогда как первые произведения Джонса можно назвать чрезмерно строгими и прямолинейными, его более поздние, усадебные постройки выглядят менее стесненными узами классического формализма. Своей

свободой и пластичностью они предвосхищают отчасти английское палладианство XVIII века. Таков, к примеру, Уилтон-хаус (Wilton House, Wiltshire), сгоревший в 1647 году и восстановленный Джоном Уэббом, многолетним помощником Джонса [1].

Иниго Джонс также прославился рядом крупных проектов городских ансамблей на основе новых регулярных принципов, таких как площадь Ковент-Гарден (Covent Garden), 1630 г., и др. Идеи И. Джонса нашли продолжение в последующих проектах. Так, Кристофер Рен создал проект реконструкции Лондона на основе набросков Джонса. Это был первый грандиозный проект реконструкции средневекового города, который опередил почти на два столетия реконструкцию Парижа. Архитектор внес большой вклад в процесс построения и возникновения отдельных узлов города, несмотря на то, что план не был осуществлен, и завершил проект здания госпиталя в Гринвиче, который был задуман еще И. Джонсоном [3].

Другой крупной постройкой Рена является собор св. Павла в Лондоне (St Paul's Cathedral) - лондонский кафедральный собор Англиканской церкви. С архитектурной точки зрения, собор св. Павла – одно из крупнейших купольных зданий христианского мира, стоящее в одном ряду с Флорентийским собором, соборами св. Софии в Константинополе и св. Петра в Риме. Собор имеет форму латинского креста, его длина 157 м, ширина 31 м; длина трансепта 75 м; общая площадь 155 000 кв. м. В средокрестии на высоте 30 м заложено основание купола диаметром 34 м, который поднимается на 111 м. Проектируя купол, Рен применил уникальное решение. Непосредственно над средокрестием он возвел в кирпиче первый купол с круглым 6-метровым отверстием вверху (окулусом), полностью соразмерный пропорциям интерьера. Над первым куполом архитектор соорудил кирпичный конус, служащий опорой для массивного каменного фонаря, вес которого достигает 700 т, а над конусом – второй покрытый свинцовыми листами купол на деревянном каркасе, пропорционально соотношенный с наружными объемами здания. В основание конуса заложена железная цепь, принимающая на себя боковой распор. Слегка заостренный купол, опирающийся на массивную кольцевую колоннаду, господствует в облике собора. Интерьер в основном отделан мраморной облицовкой и, поскольку в нем мало цвета, выглядит аскетичным [1].

Таким образом, архитектура Англии богата постройками в стиле палладианского классицизма, и мы рассмотрели лишь некоторые из них. Каждое здание особенное по-своему, каждое имеет неповторимую четкость композиции, уравновешенность и декоративные элементы, которые играют большую роль в формировании и восприятии как архитектуры этого периода, так и строения в целом.

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НЕМЕЦКАЯ АВТОМОБИЛЬНАЯ КОМПАНИЯ «PORSCHE»

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Porsche – немецкая автомобильная компания, основанная известным конструктором Фердинандом Порше в 1931 году. Фердинанд Порше-старший (Ferdinand Porsche) родился в 1875 году в семье водопроводчика. Получив образование, в 1898 году он основывает в Вене конструкторское бюро. Первая же работа молодого инженера – мотор-колесо для электромобиля – приносит ему славу талантливого конструктора.

В 1898 году Ф. Порше переходит в Austro-Daimler. Под его руководством рождаются легендарные модели: Sascha, ADM, Prinz-Heinrich и ADR.

В 1906 году он становится главным конструктором компании Austro-Daimler, где для начала проектирует артиллерийский тягач с активным прицепом [4]. До начала Первой мировой войны Ф. Порше успевает создать первый автомобиль – Porsche 64, который станет прародителем всех моделей марки. Его отличала обтекаемая форма кузова, которая выглядела совершенно иначе, чем привычные автомобили тех времен. Под капотом располагался 100-сильный оппозитный мотор с воздушным охлаждением, который позволял машине разгоняться до 160 км/час. Всего было изготовлено три экземпляра этой модели [1].

Во время Первой мировой войны он занимается проектированием моторов для самолетов и дирижаблей, а также автомобилей с гибридной силовой установкой. За инновационные разработки получает звание заслуженного профессора Венского технического университета и крест «За заслуги».

В 1934 году Ф. Порше направляет в германское министерство транспорта предложение по созданию «народного автомобиля» (дословно

по-немецки «фольксваген»). Идея нравится нацистской верхушке, а один из эскизов делает сам Адольф Гитлер. В 1937 году в Штутгарте организовывается новый завод Volkswagen, в 1938 Порше начинает работать на этом заводе. Но с началом Второй Мировой войны завод переоборудуют под выпуск армейских машин – джипов, амфибий, командирских автомобилей. Кроме того, в военное время конструктор работал над проектированием и производством знаменитых танков «Тигр», «Пантера» и самоходки «Фердинанд» [2].

Начало 21-го века в немецкой автомобильной компании «Порше» ознаменовалось новыми направлениями работы. Компания стала заниматься производством не только классических спортивных автомобилей, но также и выпуском принципиально новых видов спортивных автомобилей, таких, как спортивный кроссовер Porsche Cayenne и пятидверный спортивный автомобиль Porsche Panamera.

Начиная с 2012 года марка Porsche полностью принадлежит немецкому автоконцерну Volkswagen. Стоимость сделки составила чуть менее 4,5 миллиардов евро. Следует отметить, что изначально автомобильная компания Porsche хотела поглотить Volkswagen. Но компании Porsche не удалось сделать это.

Важно знать, что у автомобилей Porsche ключ зажигания находится слева. Изначально это было сделано для гонок «24 часа Ле-Мана», чтобы гонщик мог завести автомобиль еще до того, как полностью уселся на сиденье и пристегнулся. Благодаря этому удавалось выиграть несколько драгоценных секунд.

Компания Porsche исторически занималась не только созданием автомобилей, но и предлагала услуги своих конструкторов и дизайнеров другим производителям. Достаточно известным можно назвать тот факт, что они принимали участие в создании ВАЗ 2108 [3].

Победы спортивных автомобилей Porsche в автомобильных гонках общеизвестны. Всего побед в ралли было более 28000, причем большинство призовых мест завоевали автомобили, очень близкие по конструкции к серийным моделям, продающимся в автосалонах.

Многие гоночные модели, даже такие, как 911 GT3 и Carrera GT, выпускаются в серийном варианте. Модели автомобилей, выпущенные концерном Porsche, безупречны в техническом отношении и широко популярны в мире.

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VACUUM INSULATION IN CONSTRUCTION

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My specialty is heat and gas supply and ventilation. This specialty is very promising and it is developing rapidly. There are many problems to be solved. One of them is vacuum insulation.

Vacuum heat insulation is a modern and highly efficient insulation. It is based on the fact that the vacuum created inside the shell insulation materials (plates or panels) reduces their conductivity.

Modern trends in improving the insulation quality use evacuated substances. Thermal conductivity of different materials can be reduced at the expense of putting them into vacuum. Often specialists use hollow vacuum insulation panels for ensuring increased thermal resistance in the walling. High vacuum is formed and in the void space prevents heat transfer.

Thermal conductivity of vacuum insulated panels is only 0.007 w/m²K, while traditional building insulation it is in the range of 0.025 -0.042 w/m²K - the differences 4-6 times [2, с. 156].

Schematically the transfer of heat (cold), includes thermal insulation of the body and occurs as a result of mixing air layers with different temperatures. In addition, the atmospheric air in condition also has thermal conductivity. Creating a vacuum inside the heat-insulating panels virtually eliminates heat transfer due to convection (movement) and thermal conductivity of air.

The duration of insulating properties of the vacuum panels depends on several factors: the properties of filler, the initial degree of vacuum quality, shell dimensions and panel absorber efficiency of gas remains.

More innovative step in this insulation is the technique use of porous materials in vacuum as a filling between the walls. It can be small or aerogel powders.

Even in the 60-ies such technology was used, though only in spaces for deep cooling. Due to the fact that modern technology creates film packaging

materials, it became possible to produce vacuum insulation for more mass application [1, c. 114].

Vacuum heat insulation panel filler, e.g. different porous material is placed in a sealed envelope, from which air is pumped out. The shell consists of multiple layers, but must also contain aluminum foil coated on both sides with plastic for greater durability. They have pretty good barrier properties, but they can also pass a considerable amount of heat through their edge.

The filler is used to support the walls panels, reducing the movement of gas molecules and eliminating the radiation heat. The substances that may be included in its composition, are smoke, precipitated silica, styrofoam and aerogels.

For greater life expectancy manufacturers of panels apply gas scavengers and moisture. The type of a panel must be of the same type as the wrapper and filler. It is the same with the amount. Porous fillers, which contain silica, does not require the use of an absorber. Even if the operational period will be a couple of decades, the material of this kind perfectly copes with this challenge.

In the past, the scope of powder thermal insulation was mainly cryogenics, now thanks to modern methods of creating materials for packaging and filler, it became possible to use it for warming in everyday construction. [1, c.47]

When using such techniques technologists must check the insulation tightness of vacuum panels. It is best to use a three-layer wall panels. Then thermal insulation panels made of concrete will be protected on both sides.

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SOLAR ENERGY: STATUS AND PROSPECTS

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There is a clear need for development of alternative energy sources to replace the depleting hydrocarbon fuels we depend on for 3/4 of our energy. The characteristics that would be desirable of future energy sources are that they are extensive, inexhaustible, widely available and that they present the minimum hazards to health, the environment, and the “quality of life”.

Numerous researches confirm the fact that at the pace of scientific and technological progress by 2020 limited fuel (oil, gas, coal and peat) will not be

able to meet the needs of the world energy sector to the full. Therefore, traditional power supply systems are doomed to non-use in the future.

One of the most promising areas for solving the problem of energy supply is the development and implementation of renewable energy sources. According to forecasts, their share in world consumption in 2020 will be about 24%, and in 2040 – about 50%.

It is a well-known fact that the sun is the source of life of the Earth. There is a reason why solar energy has become a trending topic when talking about renewables. While it has been popularly criticized for being expensive or inefficient, solar energy has now proved to be very beneficial – not only for the environment but also from a financial standpoint. Additionally, due to the higher demand, the technology has been improved considerably, turning into a very efficient source of clean energy. More than that one of the important characteristics of solar radiation is the duration of sunshine.

Among all the benefits of solar panels, the most important thing is that solar energy is a truly renewable energy source. It can be harnessed in all areas of the world and is available every day. We cannot run out of solar energy, unlike some of the other sources of energy. Solar energy will be accessible as long as we have the sun, therefore sunlight will be available to us for at least 5 billion years when according to scientists the sun is going to die.

But one of the important disadvantages is that although solar energy can still be collected during cloudy and rainy days, the efficiency of the solar system drops. Solar panels are dependent on sunlight to effectively gather solar energy. Therefore, a few cloudy, rainy days can have a noticeable effect on the energy system. You should also take into account that solar energy cannot be collected during the night.

Although solar radiation has been used extensively ever since mankind moved from the hunter-gatherer mode to one of settlement agriculture it is only in recent decades that major scientific and technical effort has been dedicated to harnessing the power of the sun. Once solar radiation has been absorbed by a suitable surface and converted to heat it is possible to use this for a wide range of heating purposes at varying temperature levels. This use is often given the generic term of solar thermal systems. Solar radiation can also be used directly via the photovoltaic effect to produce electricity or indirectly through the solar thermal electric conversion process.

The atmosphere (ozone, water vapor and carbon dioxide) absorbs solar radiation of certain wavelengths. A significant decrease in the ultraviolet and infrared areas of the spectrum is the result of absorption and causes the process of ecological influence on the Earth's climate.

The surface perpendicular to the incident direct solar radiation has the highest value of the radiation intensity. Since the distance from the earth to the sun changes during the year in the range of 150 million km, the value of solar radiation also varies from 1325 to 1420 W / m ² [3].

The sun's rays that reach the surface of the earth are divided into two types: direct and scattered. Direct rays are sun rays that originate at the surface of the sun and reach the surface of the Earth. The power of direct solar radiation depends on the purity of the atmosphere, the height of the sun above the horizon line and from the position of the surface in relation to the sun. Scattered solar rays come from the upper layers of the atmosphere and depend on the reflection of direct rays from the earth and the environment. Due to the repeated reflection process between the snow-covered ground surface and the underside of the clouds the power of scattered solar radiation can reach large levels.

The sun's rays carry an inexhaustible flow of energy. They deliver to the Earth a large amount of energy. The annual amount of solar energy, which arrive on the Earth is 10^{18} kWh, on the land surface it is only 20% of this energy.

Solar energy which reaches the surface of the earth carries heat evaporates water, forms wind and water movement in the seas and oceans, gives life to plants. Although solar energy is free of charge, receiving electricity from it is not always cheap enough. Therefore, specialists continuously strive for improve solar cells and make them more efficient.

Solar radiation is converted into direct current electric energy by photocells. Most of the photocells are silicon semiconductor photodiodes. Energy characteristics of photocells are mainly determined by the following parameters: the intensity of solar radiation, the magnitude of the load, operating temperature.

The main disadvantages of solar photovoltaic stations are:

- the high cost of photocells transforming solar radiation into direct current electricity;
- the use of inverters that convert DC power to AC power, reduce their efficiency;
- the availability of batteries used as backup sources, and ensuring uninterrupted power supply consumers, significantly increases the cost of traditional sources of electricity.

These shortcomings lead to the fact that at present the cost of electricity generated by solar photovoltaic power plants exceeds several times the cost of electricity generated from traditional sources of electricity.

Since the unit cost of a solar power plant does not depend on its size and power, it is advisable to modularly place solar photovoltaic stations on the roof of a rural house, cottage, and farm. The owner will sell electricity to the power system in the daytime, and buy it from the energy company by another meter at night. The advantage of this use is savings on supporting structures and ground areas, as well as the combination of the roof and energy source function.

Considering that 1 kg of silicon in a solar cell generates 30 years 300 MWh electricity, it's easy to calculate the oil equivalent silicon. Direct recalculation

of electric power 300 MW h in view of heat combustion of oil 43.7 MJ / kg yields 25 tons of oil per 1 kg of silicon. If we take the efficiency of thermal power stations running on fuel oil, 33%, then 1 kg silicon by the generated electricity is equivalent to approximately 75 tons of oil.

Service life of solar photovoltaic power stations in the main component - silicon and solar cells can be increased to 50 - 100 years in case of the high reliability. To do this, it will be necessary to exclude polymer materials from the sealing technology. The only restriction may be the need to replace them with more effective ones. Efficiency of 25 - 30% will be achieved in production in the next 10 years. In case of replacement of solar elements silicon can be reused and the number of cycles of its use has no time limitations.

Every second the sun gives the Earth more than 80 thousand billion kilowatts of energy, and this is several thousand times more than all power stations in the world.

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ELECTRICAL DISCHARGE MACHINE

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The electrical discharge machining (EDM) is one of the most common and most accepted nontraditional machining processes used. It is an electro-thermal process and is based on the eroding effect of an electric spark on both the electrode and work piece. It is a thermal erosion process where metal removal takes place by a series of recurring electrical discharges between a cutting tool acting as an electrode and a conductive work piece, in the presence of a dielectric fluid. This discharge occurs in a voltage gap between the electrode and work piece. EDM technology is increasingly being used in tool, die and mould making industries, for machining of heat treated tool steels and advanced materials (super alloys, ceramics, and metal matrix composites) requiring high precision, complex shapes and high surface finish.

It was originally observed by Joseph Priestly in 1770; EDM Machining was very imprecise and riddled with failures. Commercially developed in the mid

1970s, wire EDM began to be a viable technique that helped to shape the metal working industry that we see today.

In the mid 1980s the EDM techniques were transferred to a machine tool. This migration made EDM more widely available and appealing over traditional machining processes. Electrical discharge machine (EDM) is commonly used in tool, die and mould making industries for machining heat-treated tool steel materials. The heat-treated tool steels material is difficult-to-cut material when using conventional machining process.

One of the main problems in electrical discharge machine (EDM) is high rate of tool wear. The wear ratio defined as the volume of metal lost from the tool to the volume of metal removed from the work material. Wear ratio varies with the tool and work materials used. If the rate of tool wear is high then the material is easy to wear and not good for machining performance. Electro Discharge Machining (EDM) is a process, where electrical energy is used to generate electrical spark and material is removed mainly due to thermal energy of the spark. The heat from the discharge vaporizes minute particles of work piece material, which are then washed from the gap by the continuously flushing dielectric fluid. EDM is mainly used to machine difficult-to-machine materials and high strength temperature resistant alloys. EDM can be used to machine difficult geometries in small batches or even on job-shop basis. Work material to be machined by EDM has to be electrically conductive.

In this process the metal is removed from the work piece due to erosion cause by rapidly recurring spark discharge between the tool and work piece. The figure below shows the mechanical set up and electrical set up and electrical circuit for electro discharge machining. A thin gap about 0.025mm is maintained between the tool and work piece by a servo system shown in figure. Both tool and work piece are submerged in a dielectric fluid.

The tool made cathode and work piece as anode. When the voltage across the gap becomes sufficiently high it discharges through the gap in the form of the spark in interval of from 10 of micro seconds. The positive ions and electrons are accelerated due to the heat, producing a discharge channel that becomes conductive. It is just at this point when the spark jumps causing collisions between ions and electrons and creating a channel of plasma. A sudden drop of the electric resistance of the previous channel allows current density to reach very high values producing an increase of ionization and the creation of a powerful magnetic field. The moment spark occurs sufficiently pressure is developed between work and tool as a result of which a very high temperature is reached and at such high pressure and temperature some part of metal is melted and eroded. Such localized extreme rise in temperature leads to material removal. Material removal occurs due to instant vaporization of the material as well as due to melting. The molten metal is not removed completely but only partially.

As the potential difference is withdrawn, the plasma channel is no longer sustained. As the plasma channel collapses, it generates pressure or shock waves, which evacuate the molten material forming a crater of removed material around the site of the spark [1].

EDM spark erosion is the same as having an electrical short that burns a small hole in a piece of metal it contacts. With the EDM process both the work piece material and the electrode material must be conductors of electricity. The EDM process can be used in two different ways: 1. A preshaped or formed electrode (tool), usually made from graphite or copper, is shaped to the form of the cavity it is to reproduce. The formed electrode is fed vertically down and the reverse shape of the electrode is eroded (burned) into the solid workpiece. 2. A continuous-travelling vertical-wire electrode, the diameter of a small needle or less, is controlled by the computer to follow a programmed path to erode or cut a narrow slot through the workpiece to produce the required shape.

Advantages of EDM

Conventional EDM machines can be programmed for vertical machining, orbital, vectorial, directional, helical, conical, rotational, spin and indexing machining cycles. This versatility gives Electrical Discharge Machines many advantages over conventional machine tools: 1. Any material that is electrically conductive can be cut using the EDM process. 2. Hardened workpieces can be machined eliminating the deformation caused by heat treatment. 3. X, Y, and Z axes movements allow for the programming of complex profiles using simple electrodes. 4. Complex dies sections and molds can be produced accurately, faster, and at lower costs. 5. The EDM process is burr-free. 6. Thin fragile sections such as webs or fins can be easily machined without deforming the part [2].

Problems

1. In a RC type generator, the maximum charging voltage is 80 V and the charging capacitor is 100 μF . Determine spark energy.

2. If in a RC type generator, to get an idle time of 500 μs for open circuit voltage of 100 V and maximum charging voltage of 70 V, determine charging resistance. Assume $C = 100 \mu\text{F}$.

3. For a RC type generator to get maximum power dissipation during charging $V_c^* = V_o \times 0.716$. Determine idle time for $R_c = 10 \Omega$ and $C = 200 \mu\text{F}$.

4. Determine on time or discharge time if $V_o = 100 \text{ V}$ and $V_d^* = 15 \text{ V}$. Spark energy = 0.5 J. Generator is expected for maximum power during charging. Machine resistance = 0.5 Ω [3].

Chisel EDM

Around 2001 Matt Moses made a contraption to do what he calls “chisel EDM” which is sort of in between sinker EDM and wire EDM. The idea is that one can use a metal blade as the cutting tool, and then cut out patterns in metal

sheet. It relates to self replication because one can use, say, an aluminum blade to cut out another blade from aluminum sheet.

Either vegetable oil or distilled water was used as the dielectric fluid. The power supply went up to 40V, and there was a switchable capacitor box to adjust capacitance. A little (terribly designed) op amp circuit measured tool-to-work voltage and controlled the vertical position of the tool (this was done with a continuous rotation RC servo and a 6-32 lead screw). Power resistors were used for current limiting.

The supply voltage, threshold voltages, main capacitance, and current limiting resistor all adjustable so that the optimum settings could be discovered:

- Supply voltage: 10V, 20V, or 40V
- Current limiting resistance: approximately 100 ohm, 50 ohm, 33 ohm, 25 ohm, 20 ohm, 17 ohm (six 100 ohm, 10 watt power resistors that could be hooked up in parallel)
- Main capacitance: six capacitors which could be switched in in parallel: 4700 uF, 210 uF, 100 uF, 20 uF, 20 uF, 20 uF

When properly tuned, this setup would cut nicely through 0.010 inch aluminum in a few minutes [4].

The EDM process has been successfully modeled in terms of SR, MRR and TWR, using a technique of design of experiments, combined with the technique of multiple regressions. Thus, time and money consuming experiments can be avoided.

The predictions were validated with the experimental results and compared with the developed models. Average prediction errors of these model validations are found to be 6.48%, 6.78% and 9.53% for SR, MRR and TWR respectively. The percentage error on TWR seems to be on slightly higher side because of very slight variation in the value of TWR and at the same time the absolute value of TWR is also very small. Thus, it can be concluded that with the developed model surface finish, material removal rate and tool wear rate can be controlled on the shop floor [5].

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ЗАЩИТА ДАННЫХ С ПОМОЩЬЮ ШИФРОВАНИЯ

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В век развития информационных систем каждый человек заботится о недоступности своих личных данных посторонним людям. Помочь нам в этом может шифрование – преобразование информации на компьютер таким образом, что она становится нечитаемой. Даже если кто-то сможет получить доступ к компьютеру с личными данными на нем, он, скорее всего, не сможет ничего сделать с данными, если у них нет сложного дорогого программного обеспечения или исходного ключа данных. Также шифрование может гарантировать, что данные не будут изменены при пересылке, и проверить личность отправителя.

Существует три различных основных метода шифрования:

1) Хеширование.

Создает уникальную подпись фиксированной длины для сообщения или набора данных. Каждый «хеш» уникален для конкретного сообщения, поэтому незначительные изменения этого сообщения будут легко отслеживаться. После того, как данные зашифрованы с использованием хеширования, они не могут быть расшифрованы. Этот метод полезен для доказательства, что данные не были подделаны. Но самое важное использование хеширования - это, конечно же, защита паролей. Если система хранит хеш пароля вместо пароля, она может проверить входящий пароль путем хеширования и проверки совпадения хешей.

2) Симметричное шифрование.

Также известно как криптография с закрытым ключом и называется так, потому что ключ, используемый для шифрования и дешифрования сообщения, должен оставаться защищенным, потому что любой, у кого есть доступ к нему, может расшифровать данные. Используя этот метод, отправитель шифрует данные одним ключом, отправляет данные, а затем приемник использует ключ для дешифрования данных.

Лучше всего использовать симметричное шифрование:

- В службах, где хранятся зашифрованные данные от имени пользователя. Например, службы резервного копирования облака.
- Чтобы зашифровать хранилище на компьютере или устройстве.
- Чтобы создать безопасный канал между двумя сетевыми конечными точками, при условии наличия отдельной схемы безопасного обмена ключом.

3) Асимметричное шифрование.

Отличается от предыдущего, поскольку для шифрования или дешифрования используются два ключа. С помощью этого метода открытый ключ свободно доступен всем и используется для шифрования сообщений, а другой, закрытый ключ используется получателем для расшифровки сообщений. Асимметричное шифрование широко распространено в Интернете:

- Для защиты соединений между браузером и веб-сайтом.
- Для безопасного входа в систему на удаленные серверы, а также для авторизации пользователей без использования паролей.
- Для загрузки обновлений программного обеспечения, чтобы компьютеры и устройства проверяли получаемые данные на подлинность.

Любой из этих трех методов пригодится вам для обеспечения конфиденциальности данных. Шифрование является необходимостью, как по юридическим, так и по другим причинам, поэтому при передаче информации убедитесь, что вы делаете все возможное для ее защиты.

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THE PROBLEM OF BIOLOGICAL WASTE DISPOSAL

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Waste management has become a complex area legally, technically and commercially. Very few organizations can still rely on the waste collection services provided through local authorities as a complete answer to their waste management obligations. Thus many firms need to identify and contract one or more reputable, licensed, specialist companies for the disposal of their waste, or discharging their legal obligations.

A key development in waste management is the focus on preventing the production of waste through waste minimization and the re-use of waste materials through recycling. This links directly to procurement issues, where careful selection of materials, suppliers, process redesign for disassembly and reverse logistics can all reduce the amount of wastes produced or facilitate recycling and re-use.

Waste management is the handling of discarded materials. Recycling and composting, which transform waste into useful products, are forms of waste management. The management of waste also includes disposal, such as land filling.

Waste can be almost anything including food, leaves, newspapers, bottles, construction debris, and chemicals from a factory, candy wrappers, disposable diapers, old cars, or radioactive materials. People have always produced waste, but as industry and technology have evolved and the human population has grown, waste management has become increasingly complex.

Biological treatments, which use organisms to break down organic substances in wastewater, are widely used around the world. Unlike other wastewater treatments, which use only mechanical or chemical processes, biological treatments include the use of bacteria, nematodes, or other small organisms.

Over time, scientists have been able to control and refine both aerobic and anaerobic biological processes to achieve the optimal removal of substances from wastewater.

These types of treatments are used worldwide because they are effective and economical compared to many mechanical or chemical processes.

Biological wastewater treatment is often a secondary treatment process, used to remove any material remaining after primary treatment. In the primary water treatment process, sediments or substances such as oil are removed from the wastewater.

Careful disposal of biological and sharp wastes is an integral component of laboratory research. Infectious materials and sharps which are not properly managed pose serious health risks to each person who encounters them, whether in the laboratory itself or at some point during the process of removal and transport [2].

A primary objective of waste management today is to protect the public and the environment from potentially harmful effects of waste. Some waste materials are normally safe, but can become hazardous if not managed properly.

Every individual, business or organization must make decisions and take some responsibility regarding the management of his or her waste. On a larger scale, government agencies at the local, state, and federal levels enact and enforce regulations governing waste management. These agencies also educate the public about proper waste management. In addition, local government

agencies may provide disposal or recycling services, or they may hire or authorize private companies to perform those functions.

The Texas Department of State Health Services (TDSHS) has identified biological or special waste as requiring special handling to protect human health or the environment. The items selected for regulation were deemed to have the highest potential to transmit infectious disease(s) if improperly treated or handled [1].

Biological waste includes:

- animal and bird corpses, including the laboratorial ones;
- aborted and stillborn fetuses;
- forfeited veterinary items (meat, fish, other products of animal origin) that have been revealed after a veterinary and sanitary expertise at slaughterhouses, refrigerated slaughterhouses, in meat and fish processing organizations, markets, retail companies and other objects;
- other waste appeared after processing of edible and inedible raw materials of animal origin [2].

The high cost of government-created recycling programs is often criticized. Supporters of recycling argue it is still less expensive than landfilling or incineration, when all costs are considered. Another concern about recycling is that the recycling process itself may generate hazardous wastes that must be treated and disposed.

Packaging of Regulated Biological Waste: It is the laboratory's responsibility to correctly package the waste.

1. All Regulated Biological Waste must be packaged with the tape, in the containers and inner red bags that are provided by the vendor or EH&S.
2. These containers are clearly marked with the universal biohazard symbol prominently displayed and labeled "infectious waste" or "biohazard waste".
3. Put the box together by finding the "this end up" orientation and tape the bottom of the box securely [3].
4. There must be an inner red liner inside the container.
5. These containers must weigh no more that forty (40) pounds.
6. Boxes must be taped shut when full.
7. Other containers should be kept securely closed at all times.
8. Any liquid must be contained in non glass leak proof containers [3].
9. Common decontamination methods for biohazardous waste include heat
10. Sterilization (e.g., autoclaving), chemical disinfection and incineration .

Record Keeping Personnel who treat and dispose special wastes onsite in accordance with the guidelines described in this section must keep the following records:

- date of treatment (also time for incineration)
- amount of waste treated

- method/conditions of treatment
- name (printed) and initials of person(s) performing treatment
- for generators of more than 50 pounds per month, a written procedure for the operation and testing of any equipment used and a written procedure for the preparation of any chemicals used in treatment.

Personnel must maintain records for three years and must have them available for review on request.

Transport and Storage of Biological Waste

The transport of biological waste outside of the laboratory, for decontamination purposes or storage until pick-up, must be in a closed leakproof container that is labeled "biohazard". Labeling may be accomplished by the use of red or orange autoclave bags or biohazard box-bag units. Biological Safety must authorize the transport or transfer of regulated medical waste or biohazardous biological waste through public streets or roadways in order to comply with DOT regulations. Biological waste must not be allowed to accumulate. Material should be decontaminated and disposed of daily or on a regular basis, as needed. If the storage of contaminated material is necessary, it must be done in a rigid container away from general traffic and preferably in a secured area. Treated biological waste, excluding used sharps, may be stored at room temperature until the storage container or box-bag unit is full, but no longer than 48 hours from the date the storage container is first put into service. It may be refrigerated for up to 1 week from the date of generation. Biological waste must be dated when refrigerated for storage. If biological waste becomes putrescent during storage it must be moved offsite within 24 hours for processing and disposal. Sharps containers may be used until 2/3-3/4 full at which time they should be decontaminated, preferably by autoclaving, and disposed of as regulated medical waste. Biological waste generated at regional campuses is picked up directly by University contracted biological waste vendors.

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TIDAL POWER STATIONS

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Tidal power is taken from the Earth's oceanic tides. Tidal forces are periodic variations in gravitational attraction exerted by celestial bodies. These forces create corresponding motions or currents in the world's oceans. Due to the strong attraction to the oceans, a bulge in the water level is created, causing a temporary increase in sea level. When the sea level is raised, water from the middle of the ocean is forced to move toward the shorelines, creating a tide. This occurrence takes place in an unending manner, due to the consistent pattern of the moon's orbit around the earth. The magnitude and character of this motion reflects the changing positions of the Moon and Sun relative to the Earth, the effects of Earth's rotation, and local geography of the sea floor and coastlines.

Tidal power is the only technology that draws on energy inherent in the orbital characteristics of the Earth–Moon system, and to a lesser extent in the Earth–Sun system. Other natural energies exploited by human technology originate directly or indirectly with the Sun, including fossil fuel, conventional hydroelectric, wind, biofuel, wave and solar energy. Nuclear energy makes use of Earth's mineral deposits of fissionable elements, while geothermal power taps the Earth's internal heat, which comes from a combination of residual heat from planetary accretion (about 20%) and heat produced through radioactive decay (80%).

A tidal generator converts the energy of tidal flows into electricity. Greater tidal variation and higher tidal current velocities can dramatically increase the potential of a site for tidal electricity generation.

Because the Earth's tides are ultimately due to gravitational interaction with the Moon and Sun and the Earth's rotation, tidal power is practically inexhaustible and classified as a renewable energy resource. Movement of tides causes a loss of mechanical energy in the Earth–Moon system: this is a result of pumping of water through natural restrictions around coastlines and consequent viscous dissipation at the seabed and in turbulence. This loss of energy has caused the rotation of the Earth to slow in the 4.5 billion years since its formation. During the last 620 million years the period of rotation of the earth (length of a day) has increased from 21.9 hours to 24 hours; in this period the Earth has lost 17% of its rotational energy. While tidal power will take additional energy from the system, the effect is negligible and would only be noticed over millions of years.

The tide moves a huge amount of water twice each day, and harnessing it could provide a great deal of energy – around 1 % of Russia needs. Although the

energy supply is reliable and plentiful, converting it into useful electrical power is not easy.

There is one main site around Russia where tidal power stations could usefully be built, including the Kislogubskaya PES (Murmansk region). Only around 20 sites in the world have been identified as possible tidal power stations. A few years ago, “tidal power” meant “tidal barrage”, but these days there are other options as well.

How it works: Tidal Barrages

These work rather like a hydro-electric scheme, except that the dam is much bigger. A huge dam (called a “barrage”) is built across a river estuary. When the tide goes in and out, the water flows through tunnels in the dam. The ebb and flow of the tides can be used to turn a turbine, or it can be used to push air through a pipe, which then turns a turbine. Large lock gates, like the ones used on canals, allow ships to pass.

Installing a barrage may change the shoreline within the bay or estuary, affecting a large ecosystem that depends on tidal flats. Inhibiting the flow of water in and out of the bay, there may also be less flushing of the bay or estuary, causing additional turbidity (suspended solids) and less saltwater, which may result in the death of fish that act as a vital food source to birds and mammals. Migrating fish may also be unable to access breeding streams, and may attempt to pass through the turbines. The same acoustic concerns apply to tidal barrages. Decreasing shipping accessibility can become a socio-economic issue, though locks can be added to allow slow passage. However, the barrage may improve the local economy by increasing land access as a bridge. Calmer waters may also allow better recreation in the bay or estuary. In August 2004, a humpback whale swam through the open sluice gate of the Annapolis Royal Generating Station at slack tide, ending up trapped for several days before eventually finding its way out to the Annapolis Basin.

Tidal power station in France

The largest tidal power station in the world (and the only one in Europe) is in the Rance estuary in northern France, near St. Malo. It was built in 1966. A major drawback of tidal power stations is that they can only generate when the tide is flowing in or out - in other words, only for 10 hours each day. However, tides are totally predictable, so we can plan to have other power stations generating at those times when the tidal station is out of action. There have been plans for a “Severn Barrage” from Brean Down in Somerset to Lavernock Point in Wales. For example, one source says the Severn Barrage would provide over 8,000 Megawatts of power (that's over 12 nuclear power station's worth), another says it would be equivalent to 3 nuclear power stations. The variation in the numbers is because there are several different Severn Barrage projects being proposed, so be careful about which numbers you quote if you're a student researching this topic. There would be a number of benefits, including

protecting a large stretch of coastline against damage from high storm tides, and providing a ready-made road bridge. However, the drastic changes to the currents in the estuary could have huge effects on the ecosystem, and huge numbers of birds that feed on the mud flats in the estuary when the tide goes out would have nowhere to feed.

Environmental concerns

Tidal power can have effects on marine life. The turbines can accidentally kill swimming sea life with the rotating blades, although projects such as the one in Strangford feature a safety mechanism that turns off the turbine when marine animals approach. Some fish may no longer utilize the area if threatened with a constant rotating or noise-making object. Marine life is a huge factor when placing tidal power energy generators in the water and precautions are made to ensure that as many marine animals as possible will not be affected by it.

Tidal turbines

The main environmental concern with tidal energy is associated with blade strike and entanglement of marine organisms as high speed water increases the risk of organisms being pushed near or through these devices. As with all offshore renewable energies, there is also a concern about how the creation of EMF and acoustic outputs may affect marine organisms. It should be noted that because these devices are in the water, the acoustic output can be greater than those created with offshore wind energy. Depending on the frequency and amplitude of sound generated by the tidal energy devices, this acoustic output can have varying effects on marine mammals (particularly those who echolocate to communicate and navigate in the marine environment, such as dolphins and whales). Tidal energy removal can also cause environmental concerns such as degrading far field water quality and disrupting sediment processes. Depending on the size of the project, these effects can range from small traces of sediment building up near the tidal device to severely affecting nearshore ecosystems and processes.

Tidal lagoon

Environmentally, the main concerns are blade strike on fish attempting to enter the lagoon, acoustic output from turbines, and changes in sedimentation processes. However, all these effects are localized and do not affect the entire estuary or bay.

Corrosion

Salt water causes corrosion in metal parts. It can be difficult to maintain tidal stream generators due to their size and depth in the water. The use of corrosion-resistant materials such as stainless steels, high-nickel alloys, copper-nickel alloys, nickel-copper alloys and titanium can greatly reduce, or eliminate, corrosion damage. Mechanical fluids, such as lubricants, can leak out, which may be harmful to the marine life nearby. Proper maintenance can minimize the amount of harmful chemicals that may enter the environment.

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THE ROLE OF COLOUR IN ARCHITECTURE AND DESIGN

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The role of architects and designers to create comfortable environments will increase as cities become overcrowded and we spend less time in touch with nature. They can often directly affect millions of people's lives every single day by the colour choices they make.

Colours have an extraordinary ability to influence mood, emotions, and perceptions; take on cultural and personal meaning; and attract attention, both consciously and subconsciously. For designers and marketers, the challenge is in balancing these complex roles that colour plays to create an attractive, effective design. That's where a basic understanding of colour theory can come in handy.

Traditional colour theory can help understand which colours might work well together (or not) and what kind of effect different combinations will create within design. Understanding the power of colour and the long term effects for those using in the space is becoming important.

Adding colours to a design involves a little more than choosing two or three hues and plunking them down in equal parts in layout. Effectively applying colour to a design project has a lot to do with balance – and as more colours you use, as more complicated it is to achieve balance.

Colour tone, combination, proportion and placement is key in any project both from a visual perspective and the overall behavioural effects. Even using the right colour but in the wrong tone and you could end up with adverse effects. But how we experience colour depends on the surrounding colours, the level of saturation, and what kind of light falls on it. Rasmussen says about the light effect on colours: «Warm and cold colors play an important role in our lives and express very different moods and emotions. We experience them in the variations of daylight from morning to evening. It is true that the eye adjusts itself to the gradual change so that the local colors of details appear the same

throughout the day. But if we observe the whole as a unit – a landscape or a street scene – we become aware of the changes in the color scheme. The entire mood changes with the changing light.»[4]

Other visual effects of colour can make things look further away or more distant; larger or smaller; cooler or warmer. Colours can also be paired by temperature (warm or cool colors), saturation (vivid colours often look youthful, while faded ones look vintage), mood (bright & fun, dark & serious), theme (location, season, holiday), and other qualities. For example, a cool blue bathroom and warm red living room. Association plays a very important role with experiencing colours; we do not only associate blue with cold water and red with fire, but also red shingles with bricks.

Colour was, on the one hand, associated with magic rituals (certain ritualic objects having certain colours according to their symbolic value) and, on the other hand, had the role of decorating the shelter. The colour, along with the lines, the shapes and, later, the volumes, was the basic element in the visual arts, painting, sculpture and architecture, playing a major symbolic role during the prehistoric period when man painted in the caves.

One of the first mentions of colour in architecture is found in the treatise of Vitruvius «Ten Books of Architecture», in book VII, dedicated to «polished finishings and the methods of giving them both beauty and durability». Vitruvius considered colour, natural or artificial, in a closely related relationship to the finishing of the surface on which is applied, with the decoration, representing one of the «appropriate principles that should govern the construction of all types of buildings»[5], namely *venustas* (this Latin term for «beauty»).

Referring to different historical periods and art movements for colour inspiration can be another great technique. The palettes below demonstrate the warm, light-filled colours common to Impressionist paintings; the vivid, unexpected combinations used by Post-Impressionists; the soft, earthy colours characteristic of the Art Nouveau movement; and the bright, bold hues of Pop Art.

With the postmodernism, the colour assumes new roles, through the exaggerated polychromy emphasizing both the volumes and the ornament, the colours varying from intense to medium range, rarely to pale range. The colour becomes again an architectural composition and space determining tool, focusing on both the physical qualities of colour and its ability to draw attention, to highlight.

As a result of the research of the phenomenon of colour in architecture over time, there are several conclusions can be drawn: it appears that colour took many functions and roles amongst which emerges, naturally, the aesthetic. But even on the aesthetic level, the colour is in constant reinterpretation of itself especially from the human perspective. The colour of specific buildings usually

stands somewhere in between the two opposites: polychrome contrast and shade, and geometrical shape of architectural structure.

Also, the colour as a property of the construction material has kept almost constant the site characteristics, of the geographical area in which the building was built. Given the role of colour on the individual awareness and psycho-physiological reactions to colour, it acquires new meanings and thus the impact of colour on the environment through human, as final beneficiary of the urban environment, should be studied more carefully.

Though still a lot of scientific research how artists, interior designers and architects have long understood how colour can dramatically affect mood, feelings, and emotions. It is a powerful communication tool and can be used to signal action, influence mood, and cause physiological reactions. The colour is experienced as secondary architectural instrument that accentuates originally colourless compositional idea. Therefore, the combining by analogy principle presumes more tautological use of colour, denying colour as an important compositional mean in creation of artistic architectural form.

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THE HANGING GARDENS OF BABYLON

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The Hanging Gardens of Semiramis, also called the Hanging Gardens of Babylon, is an amazing architectural structure that is one of the seven wonders of the ancient world. Hanging gardens of Semiramis were described by many historians of antiquity.

The gardens created by the builders of Babylon were four-tiered. The tiers of the lines were supported by columns twenty-five meters high. The fortified terraces were covered with earth, the thickness of which was enough for trees to grow there.

Hanging gardens were a structure with many cool rooms, abundantly decorated with plants, containing all kinds of trees, bushes and vines. The gardens were said to look like a big green mountain, built of clay bricks. Herodotus claimed that the outer walls were 56 miles in length, 80 feet in thickness and 320 feet in height. The width allowed two chariots with four horses to move freely. The city also had internal walls that were "not as thick as the first, but a little less strong." Inside these double walls were fortresses and temples containing huge statues of pure gold. Above the city towered the famous Tower of Babel, the temple of the god Marduk, who seemed to reach heaven.

Reports show that the garden was built by King Nebuchadnezzar, who ruled the city for 43 years, starting in 605 BC. He ordered to build marvelous gardens for his wife Amitis. She was a Median princess and was very homesick in the noisy and dusty Babylon, as she was accustomed to the green hills and the native flavors of the gardens.

There is an alternative story that the gardens were built by the Assyrian queen Semiramis during her five-year reign, beginning in 810 BC [1].

Its name - this unique structure was received because of a wrong translation of the Greek word "kremastos", which in fact means "hanging down" (for example, from the terrace).

The Greek geographer Strabon, who described the gardens in the first century BC, wrote: "It consists of vaulted terraces, one above the other, and rests on cubic pillars. They are hollow and filled with earth, which allows trees of the largest size to be planted. The pillars, vaults and terraces are built of baked bricks and asphalt. "

"The ascent to the highest story takes place on the stairs, and on their side are water engines through which people specially designated for this purpose are constantly used to raise water from the Euphrates to the garden." Rains in Babylon were rare and for the garden to survive, it would have to be irrigated using water from the nearby Euphrates River. To do this, it was necessary to lift the water far into the air so that it could water the plants on each level. This was a huge task, given the lack of modern engines and pressure pumps in the fifth century BC. The gardens had a rather complex irrigation system. For this slaves twisted a huge wheel, watering the hanging gardens of Semiramis with enough moisture. A "chain pump" was used to move the water, which consisted of two large wheels, one above the other, connected by a chain. On the chain hung buckets. When the wheel turned, buckets plunged into the pool and raised the water. Then the chain lifted them to the upper wheel, where the buckets were tipped over and dumped into the upper basin.

The construction of the garden was not only difficult, as the water reached the top, but also from the fact that the liquid did not destroy the foundations when it was released. Since the stone was difficult to get to the Mesopotamian

plain, most of the architecture in Babylon used brick. The bricks were made up of clay mixed with chopped straw and baked in the sun. Then they were combined with bitumen, a slimy substance that acted as a solution. Unfortunately, because of the materials from which they were made, the bricks quickly dissolved when they were saturated with water. For most of the buildings in Babylon, this was not a problem, because the rain was so rare. Nevertheless, the gardens were constantly subjected to irrigation, and the foundation was to be protected [2].

Diodorus Siculus, a Greek historian, stated that the platforms on which the garden stood consisted of huge stone slabs covered with layers of reeds, asphalt and tiles. For this, it was laid "a coating of lead sheets, so that wet, impregnated with earth, could not corrupt the ground. On all this was laid the earth of convenient depth, sufficient for the growth of the greatest trees.

The hundred-meter-high walls of Babylon and the crowns of trees towering above them inspired every thought of the power and power of the kingdom that had seen this miracle of the world.

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