

inches and a focal length of 197 feet. The usual equatorial mounting and dome being impracticable for such a gigantic instrument, the tube will be rigidly fixed in a horizontal position on masonry supports, and will have the light from the heavenly bodies reflected into it by a movable plane mirror 6½ feet in diameter. The plane mirror is 13 inches thick, its weight being nearly four tons. As it is thought that a magnifying power of 6,000, and occasionally of 10,000, may be usefully employed, while the highest power of existing telescopes does not exceed 4,000, interesting results are expected. The telescope is being constructed by M. Gauntier, the French optician, the estimated cost being \$280,000.

An excellent mucilage, said to resemble that from gum arabic, is prepared by Dr. George Elchebaum from the refuse of the beet sugar industry. After the root has been exhausted of its sucrose, the mass is treated with a hot aqueous solution of sulphurous acid, the insoluble metapectinic acid being thus converted into a soluble arabinose.

Methyl benzylsulphimid, a new sweetening agent, is stated to be 500 times as sweet as sugar.

THE ORIGIN OF FAMILY NAMES.

Do you know the origin of your family name? If not the following may lead to a clue that it will interest you to follow up. In the first ages of the world a single name was sufficient for each individual, and that name was generally invented for the person, in allusion to the circumstances attending his birth, or to some personal quality he possessed, or which his parents fondly hoped he might in future possess. This rule seems to have uniformly prevailed in all the nations of antiquity concerning which we have any records, in the earliest periods of their history. In Egypt we find persons of distinction using only one name, as Pharaoh, Potiphar; in Canaan, Abraham, Isaac; in Greece, Diomedes, Ulysses; in Rome, Romulus, Remus; in Britain, Bran, Caradoc, etc.

Surnames were the simple result of necessity, when population, hitherto isolated and small, became so increased as to necessitate further particularity than the merely personal one could supply. The clan or family system of the Jews helped them materially to overcome this difficulty, and in the later books of Moses we find them falling back upon this patronymic as a means of identifying the individual. Thus, such expressions as "Joshua, the son of Nun," or "Caleb, the son of Jephunah," or "Jadr, the son of Manasseh," are not infrequently met with. Later on the necessity was caused by a further circumstance. Certain of these single names became popular over others. "John," "Simon" and "Julias" were such. A further distinction, therefore, was necessary. This gave rise to surnames of a more diverse character. We find the patronymic still in use, as in "Simon Barjonas," that is, "Simon, the son of Jonas;" but in addition to this we have also the local element introduced, as in "Simon, the Cyrene," and the descriptive in "Simon, the Zealot."

In the meantime, the heathen but polished nations of Greece and Rome had been adopting similar means, though the latter was decidedly the first in method. Among the Greeks such double names as "Dionysius the Tyrant," "Diogenes the Cynic," "Socrates the son of Sophroniscus," "Hecataeus of Miletus," show the name custom and the same creed.

The Romans had a very complete system of nomenclature, and each citizen had a three-fold name. The first denoted the praenomen, and answered to our personal or baptismal name. The second is what we may term the clan name, and the third, the cognomen corresponding with our present surname. Thus, we have such treble appellations as Marcus Tullius Cicero, or Aulus Licinius Arceus. If a manumitted slave had the citizenship conferred upon him, his single name became his cognomen, and the others preceded it, one generally being the name of him who was the emancipator. Thus was it of Licinius in the last-mentioned instance. With the overthrow of the western empire, however, this system was lost, and the barbarians who settled upon its ruins brought back the simple appellations once more. Arminius, their chief hero, was content with that simple title. Alaric, the brave king of the Goths, is only so known.

Bordley, in his work on English surnames, says: "We are not without traces of those descriptive epithets which had obtained among the earlier communities of the east. One Saxon, distinguished for his somewhat huge proportions, and bearing the name of Ethelred, was known as 'Uncel,' or 'great.' We may class him, therefore, with our after 'le grands,' as we find them inscribed in the Norman rolls, the progenitors of our 'Grants' and 'Grands,' or our 'Biggs,' as Saxon as himself. Then again our later 'Fair-Slows' are but hereditary nicknames like to the earlier 'Harfargres,' 'Harefoots,' 'Transides' and 'Unready's,' which died out, so far as their immediate possessors went, with the 'Harolds' and 'Edmunds' and 'Ethelreds' upon whom they were severally foisted. They were but expressions of popular feeling to individual persons, by means of which that individuality was increased, and passed away with the lives of their owners. No descendant succeeded to the title. The son in due course of time got a sobriquet of his own, by which he was familiarly known, but that, too, was but personal and temporary. It was no more hereditary than had been his father's before him and even so far as himself was concerned might be again changed according to the humor or caprice of his neighbors and acquaintances.

"And this went on for several more centuries, only, as population increased, these sobriquets became more and more common. In the 11th and 12th centuries, however, a change took place. By a silent and unpremeditated movement over the whole of the more populated and civilized European societies, nomenclature began to assume a solid, lasting basis. It was the result, in fact, of an insensibly growing necessity. Population was on the increase, commerce was spreading, and society was fast becoming corporate. With all this arose difficulties of individualization. It was impossible, without some further distinction, to maintain a current identity. Hence, what had been but an occasional and irregular custom, became a fixed and general practice—the distinguishing sobriquet, by a silent compact, became part and parcel of a man's property, and passed on with his other possessions to his direct descendants. This sobriquet had come to be of various kinds. It might be the designation of the property owned, as in the case of the Norman barons and their feudatory settlements, or it might be some local peculiarity that marked the abode. It might be the designation of the craft the owner followed. It might be the title of the rank or office he held. It might be a patronymic—a name acquired from the personal or Christian name of his father or mother. It might be some characteristic, mental or physical, complimentary or the reverse. Any of these it might be, it mattered not which; but when once it became attached to the possessor and gave him a fixed identity, it clung to him for life, and eventually passed on to his offspring. Then it was that at length local and personal names came somewhat upon the same level, and as the former, some centuries before, had stereotyped the life of our various Celtic and Salvonic and Teutonic settlements, so now these latter fossilized the character of the era in which they arose; and now we have them, with all the antiquity of their birth upon them, breathing of times and customs and fashions, and things that are now wholly passed from our eyes, or are so completely changed as to bear but faintest resemblance to that which they have been."

The period in which surnames assumed as hereditary character as a familiar custom was during the twelfth century.

"Ap" is the Welsh equivalent of the English "son," and when it has come before a name beginning with a vowel, has in many instances become incorporated with it. Thus "Ap-Hugh" was given as "Pugh;" "Ap-Rice," "Pritch;" "Ap-Owen," "Bowen;" "Ap-Evan," "Bevan;" "Ap-Richard," "Pritchard;" "Ap-Humphrey," "Pumphrey;" or "Ap-Howell," "Powell."

The Norman patronymic was formed similarly as the Welsh, by a prefix, that of "fitz," the modern French "fils;" surnames of this class were at first common. Thus, we find such names as "Fitz-Gibbons," "Fitz-Gerald," "Fitz-Patrick," "Fitz-Warvin," "Fitz-Rauf," "Fitz-Payn," "Fitz-Richard," or "Fitz-Neele."

Emery, though not utterly forgotten as a personal name, lives on as surname. It was once a no unimportant sobriquet. America, Almerie, Almaric, Emeric of Elmerie seem to have been its original spellings in England, and it reminds us that it is the same name to which, in the Italian form of Amerigo, we owe the title of this continent. Currier forms that these are found in Aylmar, Allmar, Almar, Aymar and Amar. The surnames bequeathed by it are not a few. It has had the free run of the vowels in the Amorys, Emorys and Imalys, and in a more patronymic form we often meet with it in the Emersons, Embersons and Imersons.

The name of Robert was early prominent in public favor. From it came Roberts, Robertson, Robins, Robinson, Robison and Robson. From its shortened Dob are Dobbs, Dobson and Dobbins, Dobbinson and Dobison; and from the equally familiar Hob are Hobbs, Hobson, Hobbins, Hopkins and Hopkinson. From the Welsh too, we get as contractions of Ap-Robert and Ap-Robin Probert and Probin.

Roger, Ralph and Hugh are three familiar Norman names. From the first we get such titles as Rogers, Rodgers and Rogerson; and from Hodge, its nicknames, Hodges, Hodgkins, Hotchkins, Hoskins, Hodgkinson, Hodgson and Hodson. From Ralph we have received of Rafs, Rawes, Rawsons, Rolinsons, Rawkins, Rapkins and Rapsons. The spellings of Hugh were various. With Norman writers it is Hugues. Among the more general patronymics formed from it are Huggins, Hutchins, Hutchinson, Howlett, Hullett, Hewlett, Hewet, Heweston, Howitt, Howson, Hughes and Hewson.

From Richards we get Richards, Richardson, Rickson, Rickards, Ricketts, etc., and from Dick we derive Dicks or Dix, Dickson or Dixon, Dickins and Dickson.