

MISCELLANEOUS.

GASPARD MONGE.

Of that great constellation of mathematicians which formed the chief intellectual glory of France during the eighteenth and the beginning of the nineteenth century, no star shone more brightly in the beneficent light which it spread upon working humanity than that of Gaspard Monge, creator of descriptive geometry. The science of descriptive geometry sprang from the brain of Gaspard Monge, as did Minerva from the brain of Jove, full-fledged and without antecedent germ. "Since the time of Euclid and Archimedes, geometry has received no such accession as he furnished; and the epoch which will be known by the name of Monge will divide its history."¹ What previously to his time was a mass of isolated, disconnected knowledge, accessible only in special cases by the aid of intricate and tedious calculations, was put by him within the grasp of the commonest artisan and draftsman at an outlay of relatively little time and little intellectual effort. Machinery, perspective, architecture, fortifications, untold industrial and constructive arts, have been advanced to incredible precision and perfection by the natural insight and unassisted creative achievements of this man.

Nor were his discoveries limited solely to geometry. In analysis also he accomplished high feats. He was the first to apply the infinitesimal calculus to the general theory of surfaces, supplementing and generalising the labors of Euler, and enlarging immensely the bounds of that science. "The diabolical man," said Lagrange on reading his modest memoir, "has made himself immortal." He was also the creator of an ingenious system of meteorology and the first to explain, during the Napoleonic expedition to Egypt, the phenomenon of desert *mirages*. He threw light upon the subject of capillarity, and produced water from the combustion of hydrogen, independently of, though subsequently to, Lavoisier, Laplace, and Cavendish. While on the commission for collecting and restoring the works of art levied as tributes by Napoleon in Italy, he noted the singular contrasts and similitudes presented by the Grecian and Egyptian monuments which had been transported to Rome by the early emperors, and conceived the idea of a science of prehistoric civilisation, based with almost mathematical certitude upon a comparison of archaic monuments, inscriptions, tools, utensils, etc. All his work was distinguished by rigor and elegance, lucidity and simplicity. His brief elementary treatise on statics, which was purely synthetical in character, was declared by a competent historian to be "even yet the best introduction from geometry to that subject."

¹De Morgan.

Gaspard Monge was born at Beaune, France, on the tenth of May, 1746, the son of an honest and industrious scissors-grinder, who by heroic self-denial acquired sufficient wealth, if we may use so comprehensive a term for so microscopic a saving, to send his three sons to the college of the Oratorians at Beaune. The eldest, Gaspard, immediately distinguished himself, and at the recommendation of his instructors was invited to the more pretentious college of the same order at Lyons, where, after one year's study, he became professor of physics. While at Beaune once during a vacation he constructed with instruments entirely of his own making a simple, accurate, and beautiful plan of his natal town, which is to-day shown to sceptical travellers as the virgin achievement of the great geometer, then but fifteen years of age, and which was to determine his subsequent career. The Oratorians, having almost prevailed upon him to give up a scientific career and to enter their order, where with his talents advancement with rich emoluments and comfort for the poor family of his father was assured, he turned for advice to his father who, despite his plebeian occupation, seems to have been a man of great strength of character and common sense, and who advised him in an exemplary letter to renounce the ecclesiastical career. Monge returned to his native city, where he had the good fortune soon to meet an officer of the engineering corps from the Military Academy of Mézières, who, having seen his precocious sketch of the town, requested his father to send the lad to the school which he represented.

The school of Mézières was then producing the best military engineers in France. It was divided into two parts: a theoretical division, wherein the engineering officers proper were educated, and to which no person not the son of a nobleman or of a father *living as a nobleman* could be admitted; and a practical division where engineering superintendents, or foremen, were trained in elementary mathematics and the construction of plaster-models of fortifications. The plebeians were all relegated to this department, and from being obliged to work with mortar and plaster were contemptuously dubbed the "plasterists." Imagine Monge's humiliation when he discovered that it was only to this latter place that he could be admitted, and that henceforward free scope was to be permitted only to the development of his manual powers. He accomplished his labors, however, in much quicker time than his fellows, and devoted his spare hours to the excogitation of the new geometrical methods which were to make him famous. Having once been assigned the task of working out the *défilement* of a proposed fortress from data supplied to him, an undertaking which in those days required long and tedious arithmetical computations, he performed the task so quickly by his embryonic descriptive geometry that the Commandant refused to examine it. Persisting, however, he was given a hearing, and the Academy came into possession of a method which placed it immeasurably in advance of any similar institution in the world. When it is remembered that the proportion of military engineers at the time in question alone amounted to one-sixth of the already enormous expenditures for the fortifications of France, it will be apparent what a tremendous saving his discovery meant for the nation, quite apart from its enhancement of science.

Monge was forthwith made instructor in mathematics; the "plasterist" became the teacher of the aristocratic cadets of Mézières, and in a few years was full professor. During his stay in Mézières, which lasted at least in part until 1783, Monge developed to its fullest extent the new science which he had created, and made his school famous throughout Europe. He was prohibited by the system in vogue before the Revolution from revealing his secret to the world at large, and the officers who received his instruction were forbidden to communicate the meth-

ods they had learned even to those connected with any other branch of the public service. From a mistaken narrowmindedness the authorities were loth to accord to other countries the great superiority which their engineers enjoyed. The cruel silence to which Monge was condemned was not broken until the establishment of the great Normal School in 1794, where he delivered the lectures which now constitute his marvellous little book *Géométrie descriptive*—“which in simplicity, style, and choice of details, in a subject which might easily have been overloaded with them, stands second to no elementary work whatever.”

In 1780 Monge was elected Member of the French Academy of Sciences, and was appointed *professeur-adjoint* of Hydrodynamics with Bossut in the Turgot School at the Louvre; in 1783 he was made Examiner of the Marine Cadets.

When the Revolution broke out, Monge was caught with enthusiasm for the ideas which had always lain near his heart, and when the great crisis came for France threw all the weight of his knowledge and powerful personality into the national cause. Although a member of many committees, he always preserved his independence, and never failed to express his disapproval of the sanguinary measures which subsequently were enforced. He was instrumental in the project of introducing the new system of weights and measures, and when appointed Minister of the Navy he suppressed every personal feeling in the promotion of the best interests of his office. If in that great catastrophe which soon threatened France at the hands of United Europe, the nation was able to make the splendid military showing that it did, it was, we may say, almost entirely due to its possessing at the time a band of unexampled men of science who were able to repair the frightful ravages which years of national corruption and months of Revolutionary ignorance and fanaticism had brought upon the country. France had hitherto depended on foreign countries for all its materials of war. 1,200,000 men were needed for defending the frontiers which the enemy was already nearing, and there were arms and clothes for a moiety only of this vast aggregation. Powder, cannons, and steel were absolutely lacking in the country, and apparently, the materials for making them. Among the committee of eminent scientists who were appointed to remedy this discouraging state of affairs, were Monge and the great chemist Berthollet. Even by experts the problem was regarded as insoluble. “Where is the saltpetre to be obtained?” they asked. “From our own soil,” answered Monge, “from our barns, cellars, and vaults, In three days I will load cannon with it.” The country was flooded with pamphlets containing instructions for its acquisition. The church bells were melted for their copper, and new methods invented for its separation from tin. Pamphlets were written on the manufacturing of steel. Monge and Berthollet spent twelve hours a day in the powder factories and foundries of Paris; the former writing at night his *Treatise on the Art of Making Cannon*, without compensation of any kind, and going for days and days without other food than dry bread with an occasional morsel of cheese for Sundays. The production of saltpetre was increased twelve-fold, the number of cannon-foundries seven-fold, their output fifteen-fold. And for their pains both Monge and Berthollet were accused on the ninth Thermidor of adherency to agrarian law and compelled to take to flight.

Shortly afterwards the reformation in public instruction was inaugurated. The celebrated *Ecole Normale* was founded for furnishing the nation with competent teachers, and Monge was associated with Lagrange, Laplace, Berthollet, and other famous men, as *Professor of Descriptive Geometry*. It was here that he first publicly delivered lectures on the science which he had created. The shorthand notes

of these lectures formed the basis of his subsequent publication the *Géométrie Descriptive*. The *Ecole Normale* lived but four months. It was succeeded by the famous Polytechnical School, of which Monge may be said to be the founder. He planned its courses of instruction, passed every hour of the day in the midst of its pupils lecturing on his favorite science and the applications of the calculus to geometry, and spending his nights in the preparation of his lectures for the following day—the veritable incarnation of labor. He was the most popular of its professors and was the only one who addressed the students with “thou,” a practice which in any other would have been regarded as a grave solecism. His love for his pupils and school never admitted of diminution. Later, as a Senator and in affluent circumstances, when the stipend which was originally given to each scholar was withdrawn, he devoted his whole salary as a professor to the maintaining of free scholarships there. He defended his students twice in two great crises. Once, on their refusing to take the oath of the empire, Monge was called before Napoleon, who was not only his intimate friend but had as a General several times attended his lectures. “Your scholars, Monge,” said the Emperor, “are *rebels*. They have nearly all declared themselves my outspoken opponents.” “Sire,” answered the geometer, “it cost us enough trouble to make them Republicans; give them time and they will become Imperialists. If you will permit me a word, they have not all had occasion to change so quickly their opinion as *you*.” The Emperor turned and walked quickly away, but none of the pupils were dismissed.

As it will be seen from our frontispiece, Monge was not of prepossessing appearance. He had an unnaturally broad face, his eyes were sunken and almost invisible through his shaggy eyebrows; a flat nose with thick lips completed the satyric picture. So uncertain was his enunciation and the varying velocity of his speech that it was even said he stuttered. But with his first words, every idiosyncrasy of speech and features was dissipated. His audience was held fascinated by the magnificent simplicity and lucidity of his discourse and by the exceeding richness of its subject-matter. Others could speak better, it was said, but none could lecture so well. “He thought aloud,” was the apt characterisation given by a contemporary,—doubly true when we reflect that he spoke only upon subjects of his own creation.

In character he was gentle, honest, and brave. A distinguishing trait was his love for children. The Diplomatic Corps, on entering the audience room of Napoleon once, found him sprawled at full length upon the floor playing with the little King of Rome, a feat which, coming from a Senator and a great geometer, shocked the aristocratic part of Paris. His paternal love for the individual scholars of the Polytechnical School was proverbial, not less so than his unqualified and unselfish devotion to Napoleon, the spell of whose influence, he confessed himself, he was unable to withstand.

Monge became acquainted with Napoleon in Italy, and was a member of the committee for restoring the works of art sent to Paris from Napoleon's expedition. He also accompanied General Bonaparte to Egypt and Syria with the other eminent *savants* who constituted the Institute of Egypt, and distinguished himself there in war as well as in science. So great was Napoleon's friendship for him that it is related he once sacrificed a very important engagement in order to rescue the great geometer who was near being captured by the enemy. Napoleon frequently insisted upon his accepting the gift of a costly residence near Saint-Cloud, but Monge rejected the gift. Of all the favors with which Napoleon endeavored to overwhelm him, he accepted but two—one monetary, which was forced upon

him when he had asked assistance for Berthollet ; and the other the office of Senator, with the title of Count of Pelusium. So great was his modesty on this score that Napoleon once, when surrounded by courtiers and annoyed by their incessant petitions, turned to Monge and said bitterly: "Monge, you have no relations, have you? At least, I never hear you mention them."

His loyalty to Napoleon, unlike that of Laplace, was not diminished by the Emperor's downfall, and he remained the latter's faithful friend until the end. In revenge for his unswerving fidelity his name was stricken from the lists of the Academy after the Restoration ; then came the temporary dismissal of the Polytechnical School, which was his creation and the dearest treasure of his life. At this cruel blow, he fell into a profound mental lethargy, from which he never awakened, and died on the 18th of July, 1818. The authorities prohibited the scholars of the Polytechnical School from following the remains of their patron-saint and most beloved Professor to their last resting-place, but in violation of the edict they repaired to his grave on the day following, which was a holiday, and laid upon it an oaken branch with leaves of laurel.

THOMAS J. MCCORMACK.

GEORGE JULIAN HARNEY.

It is with the profoundest regret that we record the death of Mr. George Julian Harney, who passed from this life at Richmond-on-Thames on Friday, December the 10th last, in his eighty-first year. As a friend of the management of *The Open Court*, and as a contributor, as a life-long champion of liberty, a speaker and writer of high merit, who has left the impression of his activity in many ways on his country, we have always entertained the highest regard for his sterling worth of intellect and his nobility and geniality of character.

Mr. Harney was the last of the great Chartist leaders as he was the youngest of them. Chartism as a revolutionary movement was defeated, but it was defeated and could be defeated only because its ideals were adopted by all parties as inalienable human rights. Never movement took so deep hold of the hearts of the common people of England as this great and violent appeal for the "People's Charter," for political rights and equality ; and the ablest of the orators that swayed this great movement, the most effective of the writers that guided it was Mr. Harney. As editor of the *Northern Star*, and as the colleague of Fergus O'Connor, he addressed perhaps half a million readers.

"There is no journal of the present day," says *The Newcastle Chronicle*, "that has anything like the same leverage upon so large a proportion of public opinion. Mr. Harney's keen and vigorous writing was a style which indicated a great deal of the man. His ubiquitous activity was remarkable. Chartism had no more energetic missionary, nor one of a more ardent temper. But he had a searching intellect, and it was his own. His editorial independence even in the most formidable days of the movement, was acutely felt by his proprietor and others of his colleagues. When the movement was moribund Mr. Harney was the first to detect and declare its hopeless condition, while others with a less acute apprehension of facts or of a less fearless candor, were making futile attempts to bolster up the collapsed cause. Chartism was put out of date and rendered unnecessary by free trade and trades unionism, by railways and radicalism."

It was also during this interesting period of his career that he became the opponent of Lord Palmerston at the election in the ancient borough of Tiverton of 1847. Mr. Harney when he then opposed the veteran statesman was but thirty

years old. Eloquent and of impassioned conviction, he was yet scarcely a match for the composed, good-humored, and witty Premier, who took the "dressing down," which Mr. Harney administered to him, with such provoking good-nature as almost to disarm his opponent, and who was further encouraged by the assuring consciousness that he was certain of being elected. For the amusing and laughable incidents of the campaign we refer our readers to the articles on "Lord Palmerston's Borough" in Nos. 416 and 417 of *The Open Court*, where the reader will find, in the language of Mr. F. J. Snell and of Mr. Harney himself, delightful glimpses into the life and character of the great Prime Minister, and can also form an estimate of the sincerity and ideality of Mr. Harney's own aims. For Mr. Harney was always a man of great independence, and was never tainted with the virus of demagogism.

"The Chartists were the enemies of privilege but no advocates of plunder. The Chartists desired political justice, not political profits. The best types of their leaders, men like George Julian Harney, claimed the same right of citizenship for high and low. They fought for popular liberty, but they were no schemers for larceny by legislation. They struggled for the franchise."

And, to quote the same source of information again (*Newcastle Chronicle*):

"Mr. Harney was as little of a Cosmopolitan as he was a Socialist. He was born when Nelson was not a dozen years dead. He had all his life a passion for England. He never belonged to the weak philanthropists of democracy who are the friends of every country but their own. A friend of Kossuth and Mazzini, of Hugo, and Marx, and of the other Continental patriots in exile, he was a nationalist for his own country in the exact sense that they were nationalists for theirs. Conscious and impassioned patriotism like Mr. Harney's was little understood in England fifty years ago. It is patriotism of that type which represents the highest element of what we now call Imperialism. In that sense the last of the Chartists was one of the first of the Imperialists. Mr. Harney's knowledge of the literature of the last century was remarkable. He quoted Pope, Burns, and Byron with extraordinary ease and felicity. It must always be regretted that he died without having written the history of Chartism, which no one could have written so well. In his love of literature, his ardor for idealistic politics, his honorable independence, George Julian Harney represented a type of personality which politics knows no longer."

As to his vigor and grace of literary expression, the readers of *The Open Court* will also remember his article on "L'Abbé Lamennais" in No. 213. Like his personal friend and coadjutor, the late General M. M. Trumbull, he also was a notable example of that genuine culture of feeling and thought which contact with the best in literature can develop, even where the so-called higher scholastic education is lacking.

It was long Mr. Harney's custom to contribute to the *Newcastle Daily Chronicle* weekly reviews of books and current events, which were always distinguished by their good humor and sense. Even in the last years of his life, when he was suffering greatly, he continued his contributions without the least intrusion of his physical miseries.

Mr. Harney was twenty-five years in the United States, for thirteen of which he was keeper of the state documents of Massachusetts. He came here with letters of introduction to President Lincoln (1863), and he also made the acquaintance of Horace Greeley, Sumner, Wendell Phillips, Garrison, Secretary Seward, Longfellow, Lowell, and Whittier. He spent the last years of his life in England in the se-

clusion of his home and in intellectual companionship with his books, comforted in his final suffering by his accomplished wife, who was formerly connected with high educational circles in Cambridge and Boston.

The remains of Mr. Harney were interred in Richmond Cemetery, December 14, 1897, in the presence of his relatives and friends. He died as he had lived, in independence, and never for a moment losing his genial self-possession. So writes a writer in the *Free Review*:

"Never by word or hint did he appeal to the sympathy of those whom he so faithfully served in the cause of political freedom. Mr. Harney, in spite of his physical suffering and slender income, was anything but a malcontent. Many times when I have listened to his bright conversation and laughed at his dry witticisms, I have asked myself how many invalids of eighty could bear up so bravely beneath the burden of complicated and distressing maladies, the lack of the wherewithal to obtain specialist treatment, and the loneliness of having outlived one's intimate friends. Mr. Harney possessed a truly wonderful reserve of vitality and energy for one so old and prostrate. His voice was distinct; his intellect vigorous and still receptive. Between the wincings of pain he smiled with the hopeful look of one who still found interest in life."

And that interest he preserved to the moment of his death.

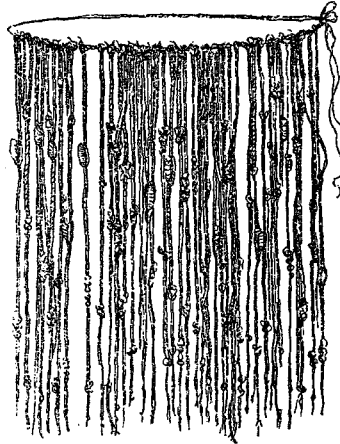
μκκκ.

RATZEL'S HISTORY OF MANKIND.

The second volume of Ratzel's *History of Mankind* (published by Macmillan & Co. in an English translation) is of special interest because it treats of the American and African races. The former have always claimed the greatest share of sympathy from the folklorists on account of the close relation in which they stand to us, and the latter form at present a great number of the inhabitants of the United States. The North American Indians are perhaps better known in their habits and civilisation than any other uncivilised race on earth. And our interest in the negro is of a deeply practical significance. But there is an additional reason which renders our knowledge of the native American race indispensable to the anthropologist. America is so isolated from the Old World that the American races have developed quite independently for a long time. Now, says Ratzel, Vol. II., page 10, "if we succeed in proving that the races of America in essentials resemble those of the Old World, the question of the unity or multiplicity of the old species will be solved in favor of unity, but if we can further succeed in bringing the stock of culture possessed by Americans into relation with the development of culture in the Old World, the question of unity and multiplicity is solved for the latter. There is no definite proof that America was inhabited before the age of the Drift, and there can be no doubt that since the age of the Drift the New World possessed human inhabitants." Brinton's conclusion that the emigration of mankind to America did not take place from Asia by way of an ice-covered Alaska but from Europe by an ancient bridge of land across the Atlantic is a hypothesis which, to say the least, needs the keenest scrutiny. It appears that the emigration from Asia is the more probable hypothesis. At any rate, the typical redskin as an independent race cannot be sustained. Nor is the old doctrine of two types among the Indians tenable. For instance, the long skulls and the short skulls are found indiscriminately all over America, and an alleged peculiarity of Peruvian skulls, the so-called Inca-bone which is found in the Gila Valley up to 6.81 per cent, has been found throughout the Continent to the extent of 3.86 per cent. The skin is not as uni-

form as is sometimes supposed. The extreme brown of the negro and the white of the European do not occur, but a light brown, often classed as light tan-color, may be regarded as the most frequent tint, which, however, shows an admixture of red pigment, and the scale fluctuates between ochre and copper. The blackness and straightness of the hair has often been compared with that of the Mongoloids, but it shows some small differences. It is neither so coarse nor so straight. It is sleek and even slightly wavy, showing at the same time a brownish undertint which is specially noticeable in children. Baldness is rare. Eyes with a blue reflex are not very uncommon. The beard is naturally scanty as in the Mongols, and is removed in youth by pulling out. The eyebrows are naturally thick and the Payaguays and Paraguays remove the eyelashes.

The similitude of early culture with Asiatic tribes has often been pointed out, but we shall here call attention to only one feature, which can scarcely have originated independently in several countries at the same time. The oldest Chinese writing is in knotted cords, which were afterwards replaced by notchings in bamboo sticks, and afterwards by the usual writing from the top to the bottom on skins and paper. The method of making records by knotted cords is mentioned by Herdotus, where King Darius leaves with the Ionians guarding the bridge at the Lower Danube thongs of sixty knots which should serve them as a calendar. He ordered them to untie a knot every day, and gave them permission to go home after the last cord had been untied. This same method of making records by knotted cords is used by the South Sea Islanders, where we find knotted strings of Pandanus leaf or cocoanut fibre serving purposes of divination as well as for the reckoning of time. Ratzel in Volume I., page 199, informs us that many chiefs wear them as memoranda around their necks. Among the Peruvians the method of aiding the memory with knotted cords has been customary since olden times, and there are a number of such old Peruvian books which are called quipus preserved in ethnological museums, but it is to be regretted that the key to the writing has been lost. We know, however, that various colors of the threads have been used to denote various tribes, and sometimes various materials of tribute. We also know that according to position knots might have meant units or tens. There can be no doubt either that peculiar twists had their peculiar significance, and also the distance between one cord and another.



KNOTTED CORDS WORN AROUND THE NECK,
FOR MAKING RECORDS AND COUNTING.

As to the negro races, we wish to emphasise here that Ratzel insists on the theory that all the lower races of mankind are not so much kept back by causes within themselves as by external conditions. "Doubtless," he says, "there have always been differences between race and race, but the sources of mental capacity flow variably according to the surroundings under which they develop. The negro in Africa, to be sure, is uncivilised, but that means undeveloped, not incapable of development." (P. 320.) "If some have indicated cowardice and in-

"solence as fundamental features of the negro character, and have, accordingly, placed him far below the North American Indian and even Malay, it is a one-sided judgment. . . . The negro has a tendency to presumptuousness and swagger. Decision alone, clear, and above all unerring as to its results, can check his presumption and the dangerous outbreaks of his savagery. In small things as in great, in hired field-labor as in politics, it has always held good that if rebuffed in his smallest pretensions the negro thinks no more of his demands, while otherwise his impudence increases without limit. This is the character of the intercourse between inferior and superior. We cannot specially reproach the negro with it. If we are accustomed to see courage and modesty go hand in hand, it is no doubt a higher ideal, but there is an inseparable connexion between the two. The trait mentioned is part of the instinctive diplomacy of human intercourse which is always striving to adapt its demands to the squeezableness which it encounters. And the negro, as the arch-realist, is a master in this diplomacy. In the service of white men the negro shows valuable military qualities." κρς.

PROPOSED SYLVESTER MEMORIAL.

To the Editor of The Open Court:

May I be permitted to appeal through your columns to all friends and admirers of the late Prof. J. J. Sylvester to assist in founding a suitable memorial in honor of his name and for the encouragement of mathematical science. A movement was inaugurated on this side of the Atlantic soon after his death and it was resolved by the promoters that a fund should be raised for the purpose of establishing a Sylvester Medal to be awarded at certain intervals for mathematical research to any worker irrespective of nationality. For the purpose of carrying out the scheme a strongly representative international committee has been formed, and I should like to take advantage of this opportunity of expressing the great satisfaction which it has given to the promoters to be enabled to include in this committee so many great and distinguished names from the American universities. In every case our invitation to join the committee has been most cordially responded to and the consent has in many instances been accompanied by expressions of the greatest sympathy and encouragement. The list as it stands practically includes the leading mathematicians of the whole world.

It has been estimated that a capital sum of five thousand dollars will be sufficient for the proposed endowment, and of this about one-half has already been subscribed here. In appealing to the American public to enable us to complete the desired sum I am in the first place prompted by the consideration that Sylvester's association with the Johns Hopkins University and the leading part which he took in advancing mathematical science in America renders his claim to estimation on the part of the citizens of your country quite a special one. It is but a modest endowment that we are asking for, and I am sure that all those who were personally acquainted with him and who realise the great influence which he exerted in raising the intellectual level of every institution with which he was associated will be glad of this opportunity of co-operating in the movement.

It is proposed that the fund when complete shall be transferred to the council of the Royal Society of London, that body having undertaken to accept the trust and to award the medal triennially to mathematicians of all countries. I can hardly venture to trespass upon your courtesy to the extent of asking you to print the complete list of our committee. It will be sufficient to state that it comprises the names

of President Gilman of the Johns Hopkins University, of Prof. Simon Newcomb of Washington, of Prof. Willard Gibbs of Yale, of Professor Peirce of Harvard, and many other well-known American men of science. Subscriptions may be sent to and will be acknowledged by Dr. Cyrus Adler, the Smithsonian Institution, Washington, or by Dr. George Bruce Halsted, President of the Academy of Science, 2407 Guadalupe Street, Austin, Texas.

I am, sir, yours obediently,

RAFAEL MELDOLA,

Professor in the Finsbury Technical College, London, England,
Honorary Organising Secretary to the Sylvester Memorial.

December, 1897.

“THE AVATARS.”

To the Editor of The Open Court :

In reading your interesting article entitled “Avatars” in the August number of your journal, I was sorry to find an error in your account of the Buddha avatar. The only Brahmanical work in which I have been able to find an account of this avatar is the *Vishnu Purana*. The occasion for this incarnation of Vishnu, according to the Purana, is the attainment of power by the Daityas by ardently pursuing the path of the Vedas and the consequent defeat of the gods in a battle between the two. The gods, on their defeat, invoked the help of Vishnu against the Daityas. Vishnu emitted from his body an illusory form and gave it to the gods, saying that this deceptive vision would beguile the Daityas and lead them astray from the path of the Vedas, when they might be easily put to death. The illusory form came in the semblance of a naked mendicant, with his head shaven and carrying a bunch of peacock feathers. The teachings of this mendicant, according to the Purana, were as follows: “The words of authority do not fall from heaven; the text that has reason is alone to be acknowledged by me and by such as you are. The precepts that lead to the injury of animal life (as in sacrifices) are highly reprehensible. To say that casting butter into flame is productive of reward is mere childishness. If Indra, after having obtained godhead by multiplied rites, is fed upon the wood used as fuel in holy fire, he is lower than a brute, which feeds at least upon leaves. If an animal slaughtered in religious worship is thereby raised to heaven, would it not be expedient for a man who institutes a sacrifice to kill his own father for a victim? If that which is eaten by one at a *Sradha* gives satisfaction to another, it must be unnecessary for one who resides at a distance to bring food for representation in person,” and so on.

From the above description of the person of the Buddha avatar there can be no doubt that it was invented by the Brahmans to reconvert the ignorant Jains to Hinduism. As both the Jains and the Buddhists repudiate the authority of the Vedas and prohibit animal sacrifices, the avatar, from the teachings attributed to him, has been regarded as applying to both the Buddhist and Jain heresies. It does not appear from the account in the Purana that the Brahmans regarded this incarnation to be, as you say, “a teacher of morals, of purity, charity, and compassionate love toward all beings,” but the purpose of the incarnation was explicitly to lead the Daityas astray from the path of the Vedas to be defeated by the gods. No doubt, judged from the modern point of view, we can regard the avatar as a teacher of morality, but what I desire to lay stress upon is that it was never intended by its inventors to be such.

Again you say that "the ideal of a Buddha avatar was a prominent factor in the foundation of Buddhism." This I believe is a mistake. The Buddha avatar must have been invented by the Brahmans after the downfall of Buddhism in India to appease those who were converted back from Jainism and Buddhism to Hinduism by means of persecution. According to Madhana Charya, a prince named Sudhaman is said to have issued, at the instigation of Kumarila Bhatta, a general order to put the Buddhists to death throughout the whole of India. The statement of Madhana is as follows: "The king ordered his servants to put to death the old men and the children of the Bandshas, from the bridge of Rama to the Snowy mountain; let him who slays not be slain." Under this sanguinary persecution every Buddhist would have been compelled to deny his faith publicly. But we can easily understand that in his heart of hearts many a Buddhist revered the great teacher, and even worshipped him in secret. This secret reverence and worship of Buddha must have induced the Brahmans, who have always shown a great aptitude for compromise if by such means their power will only be enhanced, to invent a story which would include the heresies within their own religion and represent their founders as illusive forms projected by Vishnu to lead people astray from the path regarded by the Brahmans as righteous. Moreover the clue for the invention of such a story seems to have been taken from the remarks of Sankara on Buddha. Says Sankara in his commentary on the *Brahma Sutras*: "Buddha by propounding the three mutually contradictory systems teaching respectively the reality of the external world, the reality of ideas only, and general nothingness, has himself made it clear that he was a man given to make incoherent assertions, or else hatred of all beings induced him to propound absurd doctrines by accepting which they would become thoroughly confused." May not the latter portion of this remark have given the hint to make an avatar to serve as a sop for those who had been through sheer persecution forced to give up Buddhism?

Before concluding I take the liberty of pointing out that any attempt to reconcile the Vedanta of Sankara with the teachings of Buddha must be vain. It may be possible to put meanings into Sankara's phraseology which were never intended by him, and to thus effect an apparent reconciliation. But such a course is not effecting a reconciliation between the true teachings of Sankara and those of Buddha. Furthermore Sankara himself gives the lie to any such course. He says: "Buddha's doctrine has to be entirely disregarded by all those who have a regard for their own happiness." Do you think it possible to effect a reconciliation between a philosophy of assumptions and a philosophy of facts?

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[We must distinguish in Brahmanism between the Buddha ideal which existed before the appearance of Buddha and the Brahmanical opinion of the historical Buddha. The ancient Buddha ideal is unquestionably a noble conception which must be regarded as one of the main factors that produced Buddhism, and this Buddha ideal is the original Buddha avatar of the Brahmans. However, when Buddha's reforms necessitated a radical overthrow of the traditional Brahmanism the Brahmans naturally represented Buddha as a heretical teacher who led the people astray, and thus the Buddha-avatar received a new interpretation which was intended among the reactionary Brahmans to supersede the old and original conception of the Buddha as the Enlightened One, the teacher of men and gods.

The contrast between Buddha's and Sankara's doctrines is, indeed, irreconcilable, at least in the sense in which Sankara explains his philosophy. The remark made on page 447 in No. 494 (July, '97) of *The Open Court* is not intended to slur

over a difference which is radical, but must be understood to be a concession to those disciples of Sankara who are willing to put a new interpretation upon the words of their master and explain the *âtman* to be unsubstantial pure form. This would identify the *bodhi* with the highest self of the Upanishads, and every self would be a more or less perfectly realised instance of the highest self.

Buddha denied the existence of an *âtman*, a self, and Sankara affirmed it. Now if self means a concrete being (and this was the meaning of *âtman*), then Buddha is right. But if by self we understand what Buddhists call name and form, viz., the combination of parts and characteristics which constitute a thing or a person, then Sankara's contention that the self exists would not be wrong. There is no self in itself that would be independent of its parts, but the configuration itself, the form, is real enough; it is what Plato calls the ideas of things. The ideas are pure forms and the realm of the purely formal corresponds to the Buddhist conception of Nirvâna.—Ed.]

“SOCIALISM AND BIRTHS.”

To the Editor of the *Open Court* :

I notice several statements in “Socialism and Births,” by Austin Bierbower, in a recent issue of *The Open Court*, to which I desire to take exception by assertions as follows :

1. The least considerate do *not* reproduce the fastest.
2. Licentiousness is *not* conducive to the reproduction of humanity.
3. Why should the negro and the immigrant be classed with the pauper, the ignorant and the morally low?
4. Men do not always get rich by moderating their desires, nor have the majority of rich men acquired their wealth by so doing.
5. Is not the author wrong in his ideas as to the class that produces the wealth? My impression is, it is the laboring poor and the middle classes.
6. The statement “as we live more easily, more come into the world to live,” is not substantiated by the *statistics of this or any other country*.

The morally low, the ignorant, the physical wrecks, etc., should be (by law), first of all, prohibited from marriage to foist their editions of sin on a world which has now *too many* of *that kind*, not *too many* of *honest* poor; but to prohibit the rational increase of healthy, intelligent, though poor parents, is out of all reason. Health, long life, happiness, content, and a satisfaction of having obeyed the laws of nature or an all-wise Creator, are among the blessings which are, and should, be given to heads of large families as a rule.

C. W. JEWELL.

NOTES AND BOOK REVIEWS.

MARIA CANDELARIA. An Historic Drama from American Aboriginal Life. By Daniel G. Brinton, M. D. Philadelphia: David McKay. 1897. Pp., 98.

The distinguished American ethnologist, Mr. Daniel G. Brinton, finds a wealth of dramatic interest in American aboriginal life side by side with the dry facts of science which he has so thoroughly studied there. He has been moved accordingly to give to the world an historic drama, *Maria Candelaria*, in which he attempts to impress poetic coloring on an extremely pathetic and tragic incident which happened among the Tzentals in 1712 in the extreme Southeastern part of Mexico. The Tzentel Indians stood very high in American civilisation, in some respects even higher than the Aztecs. After the Spanish Conquest they remained in ap-