

Archaic Copyright Laws." Mr. Elder points out many directions in which he believes our present copyright statutes should be amended. The substitution of a single term of protection for the present double term is recommended in order to do away with the requirement of a second registration of title and deposit of copies, and with the opportunities which the renewal term offers for unnecessary and delicate complications between the author and his assignee. A longer period of protection, also, is favored, and it is pointed out that Mr. Edward Everett Hale has already outlived the copyright of some of his earlier works, and that James Russell Lowell's earliest copyrights expired during his lifetime. The English method, Mr. Elder thinks, is preferable, namely, to grant protection during the life of the author and for seven years beyond, or for forty-two years from first publication—which ever is the longer term.

A simplification of the procedure as regards registration and deposit in the case of newspapers is advocated, and the protection, which should be secured by the fact of publication alone, "ought to be temporarily extended beyond the mere language in which the news is stated." As great expense is incurred by the Press Association and individual papers in procuring news, "the news itself, the facts stated, should be protected, and not merely the literary vehicle in which it is conveyed," but only for a brief period of time; the public should be entitled shortly after publication to the full use of all news material. Improved legislation taking into account the natural differentiation between books and plays is advocated; and the penal clauses for unlawful representation, involving possible imprisonment, are deprecated and ascribed to the influence of the "theatrical trust." "The general lack of harmony in the provisions of the statutes as to infringement and the penalties imposed are dwelt upon, and it is insisted that 'the whole system, in the light of its interpretation by the courts, calls for revision.'"

Mr. Elder has concerned himself mainly, however, with the statutory formalities upon exact compliance with which, under the provisions of our laws, copyright protection rests. He traces the development of these from the English act of Queen Anne (1709) through the copyright legislation of the original States and the various Federal enactments to date, showing how the formalities of registration of title, deposit of copies, and printing of copyright notice have become conditions precedent to obtaining and maintaining the copyright; and he inveighs against these provisions as "so many traps for the feet of the unwary," by which "the person entitled to be secured may be deprived of all protection by the most trifling slip for which he may not be, and usually is not,

in any degree responsible." Notable examples are given of cases involving the loss of copyright protection under the decisions of the courts, by reason of failure to comply exactly with the statutes as to registration, deposit of copies, and proper printing of the notice of copyright. Thus, in the case of the 'Autocrat of the Breakfast Table,' the copyright was lost because it could not be proved that copies of the *Atlantic Monthly* in which it first appeared were duly deposited. The copies of Götzberger's expensive edition of 'The Ebers Gallery' (sold at about sixty dollars) were detained in the express office until the express charges could be collected, and hence not delivered at the Library of Congress within the statutory time, and this delay led to the loss of the copyright. The misprinting of the year date by a single year in the notice of copyright has been held to invalidate the right. The printing of Mrs. Stowe's 'The Minister's Wooing' with a notice of copyright in the author's name before the last chapters of the book appeared in a number of the *Atlantic Monthly* bearing notice of copyright in the name of the publishers, was held to constitute a variance which created a fatal defect. On the other hand, 'The Professor at the Breakfast Table' having been brought to completion in the *Atlantic Monthly* which contained a notice of copyright in the name of the publishers, subsequent publication of the work with a notice of copyright in the name of the author was held to be equally fatal. In effect, an author may be entirely at the mercy of a mailing clerk in some publisher's office, so that if the title is overlooked and does not reach the copyright office before publication, the work of years may lose protection, while the failure of a shipping clerk to see that the copies of the book go seasonably forward to Washington may destroy a publishing right of great value. "It is absurd and wicked," Mr. Elder exclaims, "that a slip of a clerk or binder, or a mistake of the author, publisher, or printer, should utterly destroy all copyright protection!"

The additional prerequisite that books copyrighted must be "printed from type set within the limits of the United States, or from plates made therefrom," Mr. Elder explains, was inserted in the International Copyright bill because it could not be passed without this proviso. The opposition of the typographical unions throughout the country, which feared that the proposed legislation might transfer the setting up and printing of many books to foreign countries, would have been fatal to the passage of the act. The agitation for international copyright had continued fifty years without success, and it was thought best by nearly all friends of the cause to yield the point rather than lose the measure. He acknowledges that much se-

vere criticism has been made upon this part of the act, and, by way of exemplifying the ground of such criticism, states that a recent publication which had been set up and printed in England entailed an expense of upwards of \$40,000 for resetting and electrotyping in this country. "The American market, however, is so vast and so profitable," according to Mr. Elder, "that the expense is not prohibitive," and it is now, at all events, he concludes, "too late to consider any change in that branch of the statute."

His conclusions may be thus summarized: that there is need of revision and simplification of the law of literary and artistic property; that as it is the securing of an existing right, and not the creating of a new one, for which the law makes provision, as a corollary the law should liberally protect and not fetter, hamper, or in any case defeat the right. "The basis on which our copyright provisions rest is erroneous. It being true that the author's right of property results from his labor, genius, and ingenuity, and that protection was intended to be secured to him because of his dedication of his work to the public, there is no reason why the security itself should be imperilled by a variety of technicalities, or why the value of the work should be frittered away in litigation on questions which have nothing to do with the real work of ownership." Finally, Mr. Elder contends that "the law requires adaptation to modern conditions. It is no longer possible to summarize it in a few sections covering every thing copyrightable. It should be revised so that protection to the honest literary worker, artist, or designer shall be simple and certain."

THE NATIONAL ACADEMY MEET 'G.

WASHINGTON, April 23, 1903.

The session of the National Academy of Sciences, which has just been brought to a close, has been one of unusually varied interest. From the point of view of utility to human life, the most important paper was one by Dr. Weir Mitchell, in which he announced the acquisition of an antidote to the poison of the rattlesnake. It was many years ago that Dr. Mitchell originated the theory, soon demonstrated by himself and Dr. Reuchert, that the venoms of the cobra and of the rattlesnake, though they appear at first sight to be as different as possible in their effects, have the same qualitative composition. The bite of the cobra is almost always promptly fatal, without much local soreness or swelling. The victim dies before any such symptoms can manifest themselves. The bite of the rattlesnake is not usually fatal; but frightful swelling ensues, followed by a breaking down of the health, from which the person may not recover for years, or not at all—phenomena only too well known in those parts of our country where the *Crotalus* abounds. Yet both venoms are mixtures of the same two in different proportions. One of these is a nerve poison, acting, roughly

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speaking, like strychnine. If it does not kill promptly, its effects pass off, the matter is eliminated from the system, and that is the end of it. This constitutes nine-tenths of the cobra venom. An antidote for it has been known for some time. The other constituent, which is predominant in the poison of the rattlesnake, acts like a zymotic poison, dissolves some of the fine tissues of the blood cells and its vessels, and in particular destroys the resistance of the blood to bacterial poisons generally. It does not kill at once, but brings about fearful lesions, and lays the system open to all sorts of malignant influences. It is against this poison that Dr. Flexner of Philadelphia, a well-known student of Dr. Weir Mitchell, has succeeded in finding a protective serum which has been tested upon guinea-pigs and other animals, and whose practical efficacy has been demonstrated.

Of a widely different kind of practical interest was a paper by Mr. Alexander Graham Bell, describing an invention applicable particularly to the construction of kites. The idea seems to have been a corollary from a remark of Professor Newcomb to the effect that since the weight of a flying machine, of given shape would be proportional to the cube of a linear dimension, while the area of the supporting planes would be proportional to the square only of that dimension, the smaller a flying machine of given shape, the greater would be its proportional lifting-power. From this it would seem to follow that a flying machine or a kite ought to be built up of small independent elements. In order to obtain the greatest three-dimensional stability, the eminent inventor gives to each of the elements out of which the structure of a kite is to be built up, the form of a regular tetrahedron or triangular pyramid, formed of six equal bars. He calls attention to this tetrahedral form of elementary framework as recommending itself by its extraordinary stiffness and lightness, not merely for kites, but wherever framework is to be used. It would certainly seem to merit the attention of engineers. Mr. Bell forms a larger tetrahedral element of structure by connecting four such tetrahedral frames so that their bars shall be parallel, leaving an octahedral vacancy between them; and with numbers of such larger tetrahedra he builds various kinds of structures for which lightness and three-dimensional stiffness are needed. In particular, by stretching membranes over all the small triangles that are parallel to two of the triangles of one of the smallest elements, he obtains a kite which experience has proved to be a very light flyer. Photographs were exhibited showing kites built up in several ways from such elements, and in actual flight.

Two distinct studies, of which accounts were given, seem to have been provoked chiefly by the extreme discordances which different determinations of melting-points often show. One of these, by the celebrated chemist, Prof. J. M. Crafts, had been directed towards a more accurate method for the measurement of temperatures up to about 400° C. The proposal was to observe directly the vapor tension of naphthalene, which boils at 218° C., or benzophenone, which boils at 306° C., or of mercury, which boils at 360° C., according to the temperature whose ascertainment might be desired. This method would require,

as a preliminary, a very accurate series of experiments to be made, once for all, in order to ascertain the tensions of those vapors at different temperatures. The other study, by Mr. Arthur L. Day, who was introduced by Dr. Becker, and who explained the matter with admirable perspicuity and most agreeable delivery, related to the phenomena of the heating and cooling of anhydrous borax, as the beginning of an investigation into the melting-points of rock-forming minerals.

It appears that if a body with a sharply definite melting-point, such as silver, be allowed to cool, under constant conditions, from a temperature considerably above the melting-point, the cooling proceeds regularly, though at a slightly diminishing rate, until solidification sets in, when its temperature suddenly becomes fixed until the entire mass is solidified; after which the cooling begins again at somewhat the same rate as before. Analogous phenomena are observed when the body is heated from the solid condition. But when borax melted to a thin liquid is allowed to cool to a glass, the only hitherto known form of solid anhydrous borax, the cooling is continuous and without any particular irregularity from beginning to end, the heat of solidification being gradually evolved as the borax cools; and the same phenomenon appears when the glass is melted. If, however, the molten borax during the process of cooling, and while at any temperature between 741° C. and 490° C., be jarred or subjected to other influences which usually induce crystallization, a very marked retardation of the cooling will at once ensue, no matter at what temperature between those limits the jarring or whatever agency it be takes place; and what results after the cooling will be found to consist of a mass of crystals, a hitherto unknown form of this salt. If, now, anhydrous borax in this new crystalline form be heated again, it will be found to behave like silver, having a perfectly definite melting-point at 411° C. Quickly cooled, it will be reconverted into the vitreous form, or it sufficiently cooled at any point below the melting-point of the crystalline form and above 490° C., it can be recrystallized. Below the latter temperature the vitreous form becomes incapable of crystallization by any means that could be employed. These facts suggest a probable explanation of the discrepancies in the observed melting-points of rock-forming minerals, although there is no reason to suppose that all the large discrepancies in determinations of melting-points are thus to be accounted for.

Prof. Crafts gave, besides, another instalment of his researches into the catalysis of concentrated solutions—researches which ought to excite a lively interest among the higher physicists, and doubtless do so. Two other chemical papers were extremely interesting. One of these, it is true, was merely historical, being an account, by Professor Barker, of the researches of the late Matthew Carey Lea chiefly into the mode of action of light in photography, showing how patience and genius had, after a long chase of elusive facts, finally led that admirable chemist to run down the so-called photosalts. Some beautiful specimens of Carey Lea's allotropic silver prepared by him were shown at the meeting. Pure silver of the color

of gold, and pure silver approaching the color of copper, are very suggestive sights in view of the chemical relationship of these three metals; silver being intermediate between the other two in chemistry as it is in trade. There was also a whole sunset of gradations between the golden-colored silver and a soluble silver of a purple hue. Another paper by Prof. Barker refuted last year's assertion of Hoffmann and Zerbahn that thorium owes its radioactivity (or increasing emanation of peculiar rays) to admixtures of uranium, thus advancing our understanding of that subject by one essential step. But the interest of this particular point was quite absorbed in that of Dr. Barker's clear account of the whole history of research into radioactivity, beginning with the discovery of the Becquerel rays in 1896.

It appears that the radioactive elements are four: thorium (which has the highest atomic weight of any known element), radium (whose atomic weight has been ascertained to be about 225), polonium, and actinium (both of unknown atomic weights). Specimens of the salts of the first three were exhibited. Actinium has never gone out of the laboratory, where alone it has been found. The radiations of these bodies are of three different kinds. The simplest, known as the β -rays, consist of these particles a thousand of which are said to compose an atom of hydrogen. They are shot out with a velocity of the same order as that of the propagation of light, and are charged with negative electricity. Others, known as the α -rays, consist of relatively large and heavy particles, of slower motion and positively charged. The third kind, known as the γ -rays are remarkable for their penetrative power, their intensity not being reduced as much as one-half by passing through three inches of metallic aluminium. In some of the exhibits they had so shone through a brass stencil-plate that the letters could not be made out on the photographs. The radiations are all invisible, but there are two ways of recognizing them. They can be photographed,

and, by rendering the air a conductor of electricity, they discharge any pair of oppositely charged bodies between which they pass in a suitable way. Two of the radioactive bodies—to wit, radium and thorium—seem to emit effluvia, which have the property of rendering any bodies they reach radioactive; so that, after a long course of experimentation, Professor and Mme. Curie found that the furniture of the room and even their own persons had become so radioactive that it was impossible to make any use of an electroscope, and their work had to be suspended. Polonium has no such power of exciting secondary radioactivity; nor has uranium. Professor Barker exhibited photographs which, in view of the circumstances under which they were taken, conclusively proved thorium to be primarily radioactive when entirely free from uranium.

Of the remaining papers, the one most generally interesting was that of Mr. George E. Hale of the Yerkes Observatory, giving an account of his work with his spectro-heliograph, for which the Academy at this meeting voted him the Draper medal, and for which he received this month the Rumford medal of the Boston Academy. It would be impossible to give much idea of this elaborate work without fine engrav-

ings, for which we can only refer to the magazines; they will doubtless do justice to it. We must limit ourselves to saying that Dr. Hale has found means to photograph, all over the face of the sun, a particular stratum, or rather two distinct strata, of the lower part of the chromosphere, which is that outer rind of the sun whose splashes or eruptions, whichever they may be, produce the red prominences visible to the naked eye in total eclipses.

A paper by Mr. Lewis Boss, a model of skilful manipulation of a vast mass of numerical data, showed precisely the effect of differences of brightness of stars in accelerating or retarding the observed times of their transits. A very elaborate and meritorious study of the tides of the northern Indian ocean, by Mr. R. A. Harris of the Coast and Geodetic Survey, who was introduced by Prof. Cleveland Abbe, gave evidence that the Survey, under its present management, is not forgetting the obligations entailed upon it by its scientific past. *Noblesse oblige.* The reading of a biographical memoir of T. E. Holbrook by Dr. Theodore Gill, the eminent ichthyologist, closed the proceedings very appropriately with a handshake between science and human life. Dr. Holbrook was a South Carolinian, who died at a good age during the war of the Rebellion. He was an ichthyologist of the finest scientific quality, well known to Louis Agassiz, to Jeffries Wyman and a few more, but known to very few even of the scientific world. Forty years after his death the National Academy reads, as it were, the "Siste viator," and drops a tear over the monument that Dr. Gill sets up over him. As usual, in the hurry of the meeting, a number of good papers went unread.

The Academy added five regular members to their number: Chamberlin of Chicago, geologist; James of Harvard, psychologist; Thurston of Cornell, engineer; Webster of Clark University, mathematical physicist; and Mark of Harvard, biologist. It also elected the following foreign associates: Picard of Paris, Marcy of Paris, Backlund of Pulkova, J. J. Thomson of Cambridge, Brøgger of Christiania, Ray Lankester of London, Vogel of Potsdam, Pfeffer of Leyden, Mendelsohn of Petersburg, Zirkel, the petrographer, and Koch of Berlin. The next meeting will be held in Chicago, beginning November 17.

THE AMERICAN ORIENTAL SOCIETY.

April 22, 1903.

To present and discuss in little more than twelve hours nearly sixty papers, to the reading of each of which were allotted fifteen minutes, was the awkward task set before the Oriental Society at its one hundred and fifteenth meeting, held in Baltimore on the 16th-18th of this month. As was to be expected, some of the papers took more than the scanty measure of time allowed, some were read by title or were briefly described, and some were good-naturedly suppressed. What wealth of wisdom was contained in those thus withdrawn will be discovered when they are printed. To sketch even cursorily the contents of those actually presented requires all the space that can be given to the present report of the meeting. The Society, not being distracted by rival attractions, such as at times disturb associations meeting in the hurly-burly

week of festivities and general convocation, held together, and the sessions, five in number, were well attended. A very agreeable feature was the intrusion of an informal sixth session (in the shape of a luncheon and smoker at the house of President Gilman) between the formal morning and afternoon sessions of the second day. The hospitality of the University itself, of the Johns Hopkins and University Clubs, and of private hosts, added to the comfort of the unusually large number of attending members, while the weather, at first anything but oriental, became at last almost springlike. So persuasive were the sun and the voice of the pleader that the Society indulged for the first time in the amusement of being photographed; though some point was given to this performance by the recollection that the picture would serve as a memorial of the Society's sixtieth birthday. For the first time since the oldest "learned body" in this country. Apropos of these facts, it is pertinent, by the way, to bring to the attention of the public the action of a book-selling concern in New York, which calls itself "The Oriental Society," and sends out advertising letters signed by "The Oriental Society, F. Cooper, Secretary." It also gives itself the title "Oriental Society of London," and may be a bona-fide English society, though it appears to be merely a business firm. It has, of course, no connection with the American Oriental Society.

Of the fifty-nine papers presented in one way or another, those on Semitic subjects were in the majority, and several of these touched on topics more or less familiar to the laity. Hammurabi and Moses, the former recently introduced to the public by the German Emperor, furnished the subject-matter of two independent papers by Professor Jastrow and Professor Johnston, respectively. The latter scholar instanced the similar phraseology of the *lex talionis* in the codes of both lawgivers, and from this and similar parallels concluded that, as Israel passed from a nomadic state into the condition of a settled people in a district under the influence of Hammurabi, there could be as little doubt whence the Hebrews got their code as there is in regard to the source of their myths. Professor Jastrow set the date of Hammurabi at c. 2250 B. C., the definitive character of this date being especially important in

view of the recent rehabilitation of other dates before and after this epoch. Nine hundred to a thousand years are now cut off from periods assumed as certain a decade ago. Professor Jastrow inclined to the opinion that the influence exerted upon the pentateuchal code was less specifically Hammurabi's than generally Babylonian. Courts of procedure and an established legal system must have existed before Hammurabi. But the latter's code, in its cruelty and in other regards, is more antique than that of Moses. In the discussion that followed, Dr. Ward expressed the opinion that Hammurabi unified not the religious, but the civil law. Dr. Ward himself contributed a paper on representations of Ea and Shamash. In identifying Babylonian gods, there are certain types easily recognized, while others are obscure. A seated god with a notched sword and with rays coming from the shoulders is the sun-god Shamash; a god not seated, but standing, with streams

of water, may represent Ea, the god of water and wisdom.

Of more esoteric character was an exhaustive paper by Professor Moore on the liver in sacrifice. The importance of the *caput* in divination was shown, and the relation of the parts of the liver was sketched in diagrams. Besides other more technical Semitic papers—by Professor Hyvärnt, on the interpretation of Genesis vi. 11; by Dr. Arnold, on a Hebrew phrase; by the Rev. Mr. McPherson, on Is. xxviii. 25 (*sorah* and *nisoin* as kinds of grain), and by others—Professor Price described a pearl cylinder of 2000 B. C.; Professor Torrey exhibited some Jewish inscribed weights from Jerusalem; Dr. Bliss, recently returned from Beirut, spoke of six jar handles (c. 650 B. C.) marked with royal stamps and discovered by him in Palestine; Professor Prince gave a translation of the Sumerian *Belit* hymn, K. 257, than which, in his opinion, "there is no better example of henotheism merging into monotheism"; and Professor Haupt, in a paper on David's dirge on the death of Saul and Jonathan, maintained that there were no pre-exilic hymns and no real psalms of David.

An important paper on religious development was that of Professor Jastrow on the national Assyrian god Ashur. Hammurabi's code speaks only of protecting deities restored to the city of A-usar, the god not being named, which indicates that this title originally referred to the district. On the other hand, *ashur* (meaning "beneficent" or "saviour") was originally an epithet of the god who was contributed to the Babylonian pantheon by Assyria, where, in contrast to the Babylonian triad, Anu, Bel, Ea, this divine lord paramount made for monotheism. Possibly in Babylon there was a confusion between the form of this name and that of *asari*, Marduk. This was one of the papers read at the Friday afternoon session, devoted to comparative religion. The first place on this occasion was given to the maiden effort of a new member, Miss Margaretta Morris of Philadelphia, who, in a rapid survey, discussed the development of religion from the point of view of sociology, her theme being that the idealization of the useful explains religious modifications. Dr. Gilman, who at this meeting was for the tenth time reelected President of the Society, spoke the same afternoon on aspects of the archaeological researches proposed to the Carnegie Institution, and mentioned that several scholars, among them Prof. Seymour in the interest of Greek archaeology, were already at work for preliminary surveys of work which hereafter might be aided by the Carnegie Institution. In conclusion he remarked that the funds of the Institution were not sufficient to carry out half the plans submitted to it by various other institutions, and begged the public to have patience, and remember that every plan of work must be carefully considered before action was taken.

On the same afternoon was read a letter from Professor Jackson, written in Persia, on local devil-worship, a few first-hand additions to what was previously known about the Yazidis; and the Rev. Mr. Ousani described the mourning rites of Arabia. A curious link between the Middle Ages and the present was suggested by the former American Consul at Bagdad, Dr. Sundberg, who gave from personal experience an account of the Salibiyeh, a little known