Homer L. Dodge - First president of AAPT

Janet B. Guernsey

Even as physics is a multi-faceted discipline, so the physicist tends to be a multi-faceted person. Such a person is Homer L. Dodge, physicist, teacher, administrator, and white-water canoeist, forever interested in the "go" of things whether they be machines, physical forces or people. At the age of 91 he is still ready to take up his paddle and go, intent on a new project or the continuation of an old one.

Homer Dodge was born in Ogdensburg, New York on October 21, 1887, the second son of Orange Wood and Isabella (Donaghue) Dodge. His father, a graduate of Middlebury, taught Latin and Greek at the Ogdensburg Free Academy. His mother, a graduate of the Potsdam Normal School, felt strongly that her life should be in large part devoted to improving her mind. She read constantly, anything she could find; there was a family joke that she invariably had a book propped behind the kitchen sink. Homer, his brother, and their parents formed a closely-knit family unit, always aware of the physical world around them, and particularly at home on the St. Lawrence River which was a part of their daily lives. Homer himself, even as a youngster, felt that the river was a sort of grandfather to him, teaching him the laws of nature, and guiding his growth. He early began to understand the feelings of the Indians about the kinship between nature and man. He says, in fact, that the Indians were practicing good ecology from a religious viewpoint long before the white man understood these practices from a scientific point of view. He grew to know that "if you will play fair with the River, it will play fair with you."

The Dodges spent a great deal of their time among the Thousand Islands in their St. Lawrence River skiff, a rowboat 18 ft long and 42 in. wide, shown in Fig. 2. His mother's pride was the canopy which sheltered the occupants from weather or sun. When Homer was only three years old they found themselves among the islands, twelve miles from home, too late in the day to undertake the long row home. As the weather was perfect they decided to pull up on the shore and spend the night in the boat, with some protection from the canopy. Many years later Homer recognized the very spot at which they had camped, a sand beach with an overhanging oak tree. Thus he early showed the abilities which have marked his life: precise observation of his sur-

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Fig. 1. The Dodge family in their St. Lawrence River skiff. Homer, the small boy in the sailor suit, was about six years old.

roundings, and retention of these observations over a long period of time.

Homer was rowing the skiff alone at the age of five. It did not take him long to discover for himself the vagaries of the currents in the St. Lawrence. The currents went strongly downstream, while the eddies tended to go upstream on the lee side of the islands. Thus he would coast downstream with the current, and use the eddies to bring him back upstream, managing a four- or five-mile row with hardly any work.

As a young boy Homer was not interested in ordinary games, jigsaw puzzles, and such, but rather chose to investigate the "why" and "how" of everything around him. He procured from the *Youth's Companion* a set of zinc and carbon rods which when dipped in a solution of potassium permanganate made a small battery from which he could run a motor to make all sorts of things work. He invented a fire lighter run by a clock so that his mother wouldn't have to get up so early to light the coal stove, also a water motor to run her sewing machine. His mother did not really seem to appreciate the inventiveness of her eight-year-old son, but he was undaunted by her lack of enthusiasm. His father, however, encouraged this interest in the *go* of things. When he was six they visited relatives in Rochester for a month, and his father took him to the waterworks, a shoe factory, the Pettijohn cereal factory, and the natural history museum. He was thus encouraged to make visits in the Ogdensburg area on his own. He remembers vividly a visit to the plant where the city's gas was made from coal. On the wall was an early telephone switchboard, clearly the "exchange" for the entire city of Ogdensburg. He picked up enough information from such visits to enable him to make modest repairs to household equipment for a small fee.

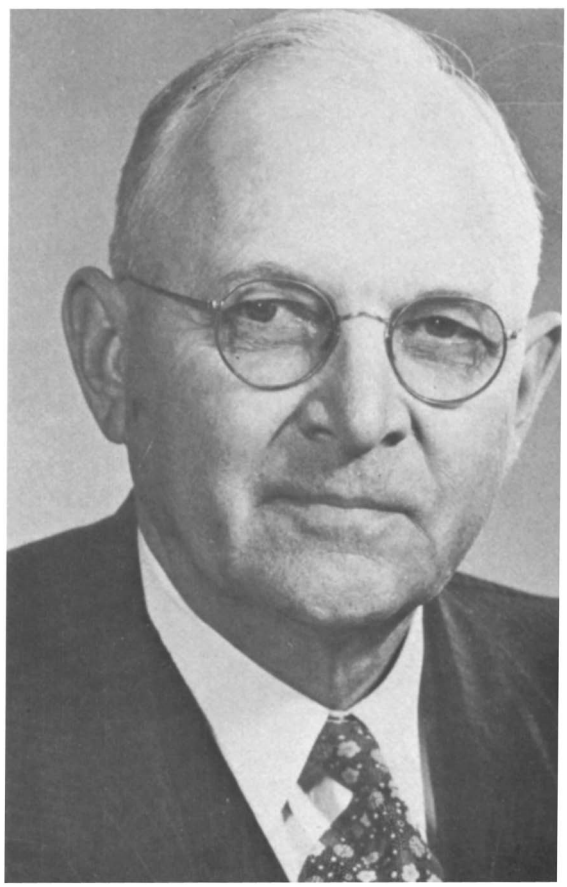

Fig. 2. Homer Dodge

At the age of seven he became a business man, selling bunches of flowers from the garden for three cents each – and not two-for-a-nickel, thank you! He soon decided he should be saving for the future, and that his savings should be working for him. He persuaded his father to borrow money from him, at 6% interest. The elder

Dodge meticulously signed notes for small amounts and paid this interest regularly.

By the time he was in high school Dodge was making large batteries using discarded carbons from street arc lights, and zinc plates bought from his meager funds. He designed and made a fancy hardwood box which held four wet cells and had a complicated switching arrangement for connecting them in series or parallel, and a pulley system to remove the zinc from solution and thus stop the battery action. He wanted to make a fuse to shoot off a cannon, and knew that he should use high resistance wire but did not know where he could get any. His solution was to use the very fine copper wire from a discarded telephone receiver, and the device so made actually worked! "Quite a job," says Dodge, who also admits that "the greatest pleasure was in the *doing* more than in the *using*." He learned about scaling the hard way when he doubled the dimensions of a box kite he had made. The larger kite of course had four times the area of cloth, and this required far larger wooden members than he had realized. When he could finally afford to buy enough string, he sailed his kite a quarter mile over the St. Lawrence.

In school Homer was a top student who enjoyed all his subjects except civics, feeling it didn't make sense. He was valedictorian of the graduating class at the Ogdensburg Free Academy, despite a rival who took the language examinations twice in order to win the honor. His academic record, the highest ever recorded until that time, won him a full-tuition scholarship to Cornell. His parents felt he should wait a year before going to college, and agreed to let him take a trip alone in the skiff in trade for the year away from college. He fixed up the skiff for sleeping and cooking; his father found him Samson – half bulldog, half Boston bull – for a companion, and in September off went the 17-year-old boy on a seven-week 500-mile trip from Ogdensburg to Kingston on the St. Lawrence, then the Rideau Waterway to Ottawa and down the Ottawa River to Montreal. The return home was made by loading the skiff on one of the barges which were being towed back up the St. Lawrence after delivering their loads of coal at Montreal. It was his first visit to large cities and he spent a week in Ottawa camped out in a boat livery and a week in Montreal camped at the Lachine Canal locks. An example of his experiences was a trip through one of Canada's leading printing establishments escorted by no less than the owner himself. The entire trip was made at a cost of 32 hard-earned dollars. The return was made in freezing weather and the rest of the school year was spent in postgraduate work at the Academy.

From then on there were countless trips among the Thousand Islands exploring and mapping, running rapids, and taking waves from larger boats. Of the eight great rapids on the St. Lawrence Dodge has run all but one in a skiff or canoe – the one omission was the result of a dam having been built before Homer got there. He has run them all on one of the last of the great squared-timber rafts. Dodge has become known as the "Dean of white-water canoeing." Both Homer and his mother loved to take big waves in the skiff – whether originating from a tourist steamer or just forces of nature. The steamer captains were not enthusiastic about seeing a lone boy in a skiff skirting the bows of their boats.

His main interest was in exploration, in going up small backwaters close to shore, always observing and feeling close to nature. During his high school years he spent two summers tutoring two children at a summer home in Chippewa Bay, one of the most attractive of the St. Lawrence areas. For him it was a paid vacation rather than a money-making endeavor. Here he had the use of a skiff and of one of the famous Peterborough canoes. He found that the canoe opened up a new range of boating experience much more to his liking than that associated with the motorboats just beginning to be used. We should note that all of his learning about the river was done through experience. There were no books, no other boys with similar interests. He was alone most of the time, observing and learning. His parents understood, since they themselves were wedded to the river and were recognized by the community as amateur ecologists, respectable but somewhat odd.

In 1906 Homer decided that he had better have a summer job which would earn some real money. With knees shaking and cap in hand he went to Senator Malby's office to ask for help in finding a job. It happened that Malby had just received a request for candidates to work on a U.S. Geological Survey project. Dodge found he was too young to apply and consulted a young lawyer about what to do. On the lawyer's advice to "always tell the truth" he did so, and was signed on as a laborer. As luck would have it, the rodman of one of the surveyors was late in making an appearance and Dodge was made a substitute. With characteristic thoroughness Dodge had found instruments and a book on surveying in the physics lab which he had studied with close attention. When the rodman finally appeared he found that his job had been permanently assigned to Dodge. That summer and several subsequent ones gave Dodge an education as a topographer with his name appearing as one of the "authors" on two topographic maps. He also learned to get along with people, for the normal places to stay were farm houses and small inns, usually at reduced rates thanks to the personality of the instrument man with whom he worked. In later years he was able to make corrections of navigation charts of the St. Lawrence River, a service much appreciated by the government chart makers.

After his long trip in 1905 Homer took some courses he had missed at the local high school, and in the spring made his decision to attend a small liberal arts college, Colgate, rather than take up the Cornell offer. He says he has "always avoided the big puddles for the small ones." The physics department at Colgate was ably run by Professor C. D. Child – they called him Icky Child – and Dodge received a strong background in physics, although he considered himself half engineer, half physicist. Child had been contacted by G. W. Stewart of the University of Iowa who was searching for a part-time instructor who would also be their first graduate student from outside the university. Characteristically Homer delayed making his decision about applying for the position until he had paid a visit to the geology department to study their topographic maps of the Iowa City area. When he saw that the Iowa River would be an ideal canoeing stream he accepted Stewart's offer with alacrity.

At Iowa Dodge found himself teaching material which he had not previously studied, but he managed to keep a jump ahead of the students, and to have his laboratory in electrical measurements ready at least a half hour before the students were scheduled to arrive. In 1915

Dodge taught a forerunner of our present-day "physics for poets" courses, called "The Physics of Everyday Life." Even then he was a strong believer in having every student understand enough physics to deal with the equipment and situations he must meet as an adult citizen. Today, with the wealth of technological developments which have come about, he feels even more strongly the need for practical courses of this type. He claims that along with knowledge of basic physics comes the ability to *think* about problems, and then to solve them.

During his graduate studies at the University of Iowa Dodge showed his characteristic thoroughness when given a research project to determine the effect of temperature on Young's modulus of wires. He not only turned up discrepancies in already published papers, but also demonstrated the propagation of the errors through a series of papers published both in this country and abroad. He says, modestly, "Well, I got that little corner cleared up!" After three years at Iowa he spent a summer at Columbia as research assistant to Professor A. G. Webster. Here he met George Pegram who offered him an assistantship at Columbia. Dodge turned down the offer feeling that at Iowa he would be limited only by his own ability to develop. He was definitely headed for teaching and thus also turned down an offer to go on an Arctic expedition with Stefansson as topographer and magnetic observer. He was awarded the Ph.D. by the University of Iowa in 1914 and became an assistant professor in 1915. Four years later he accepted the position of head of the department of physics at the University of Oklahoma.

Dodge arrived at Oklahoma at the end of World War I, when all members of the physics department faculty had left, so the development of a curriculum was his responsibility. His interest in engineering brought him to the conclusion that Oklahoma should have a program in engineering physics for those students whose interests leaned toward applied physics. He had discussed this with George Pegram, then dean of engineering at Columbia, who agreed thoroughly but felt the time was not yet ripe for Columbia. At Oklahoma, however, Dodge, with the cooperation of the dean of engineering, managed to get this program started within a few months of its conception and as a corollary set up a program in geophysics. The Oklahoma school of engineering physics grew apace with Dodge as its director, and in 1926 he was made dean of the graduate school at the age of 39. He established a council of the graduate school faculty which, with the entire faculty, was responsible for all decisions concerning the administration of the school. Dodge says, "I never did anything wrong because I never *did* anything. Everything was decided by majority vote." Once again he had shown he knew how to make things GO. We insert here Dodge's rule for a good promoter: "One who sees a situation out of which important good results can come. With a little push here and a little help there he causes the desired result to come about by natural causes." When asked if you didn't have to have a bit of luck along with the promotional efforts he said, "You may have to have a little luck, but you have to plant yourself right square in front of the luck."

As a faculty member and dean of a state university Dodge felt strongly that the universities should be involved in assisting state government and industry. This thinking resulted in the formation in 1941 of the Oklahoma Research Institute of which Dodge became the first director. Their major tenets were: 1. We are not going to be hired by industry to do research; 2. We will offer industry the privilege of contributing money to support research in which the university is interested.

For two years (1942-1944) Dodge was on leave as Director of the Office of Scientific Personnel of the National Research Council. Its stated purpose was to protect the interests of science, and more particularly to make science useful to the war effort. This was a happy time for Dodge since everything his office did was successful. He says he didn't have time for projects whose success was doubtful! He admits taking authority into his own hands so that projects could progress rapidly, without communications in octuplicate, without ratification from on high, with a small office and dedicated personnel. If asked upon what authority he acted he would answer "Why, my authority is that this needed to be done!" So much for bureaucracy.

In 1944 Dodge left the University of Oklahoma to become President of Norwich University in Northfield, Vermont, an institution founded in 1819 to "educate young men for civilian life, but also to train them in military affairs so that in time of conflict they could immediately rise to the defense of their country." It had a healthy balance of liberal arts and sciences and engineering, a combination in which Dodge believed. Engineering education in America began at Norwich as "civil engineering" in contrast to the military engineering at West Point where the founder of Norwich, Captain Partridge, had been superintendent. Of course, the term is now applied to only one of the many engineering fields. Dodge found Norwich at the end of the war with few students and a depleted faculty but managed to put it on its feet with a rapidly increasing student body and the best faculty it had ever had.

Throughout these years, from his matriculation at Iowa onward, his great concern had been with the importance of teaching as a profession. In 1932-33 he was Field Director of the American Association of University Professors' Survey of College and University Teaching. The American Physical Society, founded in 1899, was concerned only with research, and research at the forefront of scientific knowledge. This was understandable since it was not until the early 1900s that the American Ph.D. in physics began to be recognized as the equal of a doctorate from a European university. Johns Hopkins, with Rowland and Wood, had been the first real university in this country, closely followed by Cornell which soon became the center for physics in the United States. By the turn of the century pure research, associated with the granting of the doctorate, was expanding rapidly; new frontiers were being explored. There was little concern for the education of the next generation of physicists.

Dodge attended his first annual meeting of the Physical Society in 1910 in Minneapolis. He still has the program, printed on one 8-1/2 in. x 11 in. sheet of paper. There were 42 papers listed, and the attendees (all the good physicists in the country) assembled in one small room. It was here that Dodge began his acquaintanceship with those whose names are written in the history of American physics. Thereafter he regularly attended the Thanksgiving meetings of the society in Chicago. He says it was indeed a thrill for a youngster to go down into the third basement and listen to Michelson explain his ruling machine.

Fig. 3. Paul Klopsteg, with whom Dodge worked to found AAPT.

At Iowa, as a part-time instructor, Dodge soon found that he was expected to concentrate on research even if it meant some neglect of his teaching responsibilities. He was bothered by this since he found teaching a tremendous and exciting challenge. He says, "As a student I'd been studying so that I might answer questions in class if I were asked. As I began to teach I found I must prepare myself to be able to answer any question that any student might ask, and be able to give a clear and complete explanation. That is the proper way to study." Through meetings of the Physical Society he became acquainted with Paul Klopsteg,[1] then a graduate student at Minnesota. In 1916 Klopsteg visited Iowa and the two young men talked long and seriously about the problems of teaching, and the necessity for a balance between pure research and teaching. Their definition of a physicist was "a person working in the field of physics, including research in all branches and including teaching at all levels, but particularly at the college and graduate levels." They recognized that "some physicists would be primarily interested in research, others almost exclusively in teaching, but that the great mass of physicists would be interested in and concerned with both, without neglecting either." Dodge had earlier tried to express this concern to the leaders of the Physical Society, but even with the assistance of Professor A. G. Webster of Clark University (earlier of Columbia), he had gotten nowhere except that he was made the official representative of the Physical Society on the editorial staff of a journal called *School Science and Mathematics*, a position he held until 1924. Dodge and Klopsteg did not, however, give up the idea of an association devoted to the teaching of physics, but felt they should wait until the climate was more auspicious.

In succeeding years Klopsteg met with other physicists interested in forming an organization for physics teaching. Among them were William S. Webb and Marshall N. States of the University of Kentucky. Several committees, one appointed by the Council of the Physical Society, met to study the problems of physics teaching in its various aspects, but their conclusions fell on barren ground. By the fall of 1930, however, these interested physicists decided that the time was right for the launching of the proposed new association. Klopsteg, Webb, States, and Glenn W. Warner of Crane Junior College, editor of *School Science and Mathematics* compiled a list of 30 physicists to be invited to a luncheon and organizational meeting during the Physical Society sessions at Cleveland in December of that year. They agreed that Homer Dodge should be invited to chair the meeting.

The organizational meeting took place on December 29, 1930 at the Cleveland Club with 23 people attending and Dodge as chairman. He called for nominations for chairman and was himself elected to fill that role. An agenda had been prepared, and the first question discussed was the relationship of the new organization to already existing ones, in particular to the Physical Society. The discussion was broad ranging and covered a bit of the history of the attempt to have a Section of the Physical Society devoted to teaching. As chairman, Dodge wished to have every point of view expressed, but felt it imperative that a clear-cut decision be made. The time for further study had passed, they had there "the best group that could probably ever be gathered together," and they should "do it now or forever hold our peace." A resolution was passed unanimously that a formal interim constitution and by-laws be prepared by a committee for presentation to a second meeting on December 31. Officers were then elected: Dodge as president; Klopsteg, vice-president; Webb, secretary-treasurer. The organizers of the meeting had of course already prepared a tentative constitution, so with the burning of some midnight oil this was ready in its entirety for the December 31 meeting which was held at the Case School of Applied Science (now Case Western Reserve University), with 45 physicists attending. Of these 45 people, 42 immediately applied for membership. The timing had indeed been propitious.

The newly elected officers were charged with appointing an executive committee, and Dodge realized that the make-up of this committee was crucial to the success of the society. He realized the importance of cooperation with the Physical Society and knew that there must be included physicists of recognized research stature who were also convinced of the importance of teaching. His innate ability to give a little push here and a little persuasion there resulted in the appointment of Karl Compton and F. K. Richtmyer to the executive committee. Both were definitely identified with the Physical Society. This, says Dodge, was a critical point in AAPT history. When the American Institute of Physics was organized in 1931 these men were essential in representing the interests of AAPT as well as of the Physical Society. Dodge says that from the very birth of AAPT there was close cooperation between the two societies. They were distinct entities, and offered the physicist whose interests were balanced between pure research and teaching an opportunity to express his opinions and be heard in appropriate places. AAPT clearly served as a forum for curricular and apparatus development and helped to overcome the then prevalent feeling that teachers were a breed apart, second-class citizens who were unable to involve themselves in pure research.

The first program meeting of AAPT was held in conjunction with APS at the Bureau of Standards in Washington in April 1931. President Dodge, realizing the importance of showing that AAPT was not an organization of pure pedagogues and educationists, had invited as principal speaker A. W. Hull of the General Electric Research Laboratory. The title assigned to him was *not* "The Teaching of Physics," but rather a carefully selected one: "Training of Physicists." Coolidge, of x-ray fame, also spoke at this meeting, scheduled at a time when nothing conflicted. Says Dodge, "Lots of APS 'old timers' turned up to see what was going on – and there was Coolidge!" AAPT was off to a flying start, and by December 1931 counted 507 members.

The executive committee and Dodge as president early recognized the need for an official journal, and at their meeting in December 1932 action was taken. Duane Roller had turned up at the University of Oklahoma right after World War I as a summer student, and Dodge had arranged that he should become a regular graduate student, then sent him on to Caltech for his Ph.D. under Millikan. He had returned to Oklahoma in 1928 as a member of the physics faculty. Roller was appointed first editor of the journal *The American Physics Teacher*, which became the *American Journal of Physics* in 1940. The first issue was published in February with an article by Richtmyer entitled "Physics is Physics,"[2] cleverly supporting the inclusion of teaching as an important aspect of physics, and expressing the idea that teaching is more of an art than a science. The journal was quickly accepted by the membership even though the annual dues had to be raised from $2.00 to $3.00.

Dodge remained in the presidency of AAPT for two years. Its membership was rapidly increasing, its journal was about to be launched, and after some discussion it had been included as a founding member of the American Institute of Physics. AAPT was recognized as standing for *everything* in physics, research and teaching in all aspects. The programs were challenging, and at some of the joint meetings there were more people at the AAPT sessions than at those sponsored by APS. The atmosphere of cooperation between the two organizations, however, never wavered.

During his first year as president Dodge began to think about the selection of the person who would follow him. He felt it was his responsibility to the association to produce a suitable candidate. He was sure that, since he himself hailed from the "wild west" the membership would most readily accept an easterner with all the "proper" training. Such a man was Frederic Palmer, chairman of the Haverford physics department, a man who had been brought up on the Harvard campus by his uncle, a professor of philosophy, and his aunt, then president of Wellesley. All his degrees were from Harvard, he was a cultured eastern gentleman, sincerely interested in teaching as well as research. Palmer was elected as vice-president to serve during the second year of Dodge's presidency, and then succeeded to that office in December of 1932. Elected with Palmer were David L. Webster, chairman of the Stanford physics department, vice-president; and Paul Klopsteg, treasurer. Webb continued as secretary. Dodge had been instrumental in bringing in Webster who would become the third president. He felt it imperative that regional sections of the association should be formed as quickly as possible, and that the election of a Californian, well known for his research as well as for his keen interest in teaching, would foster the development of such regional sections. Once more we see Dodge's ability to make things "go." He had carefully studied the methods used by other successful organizations and applied them to this one, albeit with a velvet glove.

In 1934 Dodge was chairman of a successful membership drive which brought in 200 new members. After this, although he continued as an AAPT member of the governing board of AIP until 1939, he felt it was time for others to take over leadership in AAPT. AIP then had an office in the Flatiron Building and had found a possible new location, a private home on 55th St. Dodge became chairman of the fund-raising committee for the purchase of this home. He agreed to do this with the stipulation that he *do it his own way*, with no professionals involved. He organized a committee of physicists from all over the country who worked without pay; the fund-raising office was run at the expense of the University of Oklahoma. Eventually the fund grew to between $125,000 and $130,000. Dodge felt strongly that the character of the beautiful home should be kept, and to this end had great fun purchasing oriental rugs, furniture, and bric-a-brac for the new office, expertly chosen and at bargain prices. He was also concerned at this time that AIP should publish a general interest journal, and was closely involved in the birth of *Physics Today*. He gave the 10th Anniversary speech at the AIP celebration of this landmark.

In 1944 Dodge was awarded the Oersted medal of AAPT for notable contributions to the teaching of physics, and at the ceremonial session of the joint AAPT-APS meeting in 1947 he gave the Richtmyer memorial lecture. In 1977 he received a Distinguished Service Citation for exceptional contributions to the teaching of physics.

During his presidency of Norwich University he became well acquainted with a trustee, Godfrey Cabot, who had been awarded an honorary LL.D. by Norwich and who was interested in aviation. Not surprisingly Dodge himself had been interested in aviation ever since he had seen the flight of the Wright brothers on the Parade Ground of Fort Myer on August 7, 1908 which sold the first airplane to the Armed Forces. He says he couldn't at the time understand why instead of a rudder at the tail the Wrights had a device at the front of the plane to maintain equilibrium. Certainly a canoe couldn't be guided that way! Years later on a trip to Alabama to consult about a possible site for a government aviation school he was invited to fly the twin prop DC3 in which the group was being transported home. He says he tried to think of the rules which should govern airplane control, then gave up and asked, "How about if I fly this thing the way I would guide a canoe on the river?" The pilot agreed and Dodge flew the plane up the Hudson, over Lake Champlain, then on to Norwich and circled the campus. The pilot was a bit nervous about the mountains, but Dodge says he *knew* how to get out of the valley. After all, he was a topographer. Later he flew a DC3 for an hour over Japan and a DC6 for two hours over the Pacific Ocean.

The association with Dr. Godfrey Cabot resulted in a gift to Norwich of Cabot stock worth considerably more than a million dollars for the establishment of a program in aviation. This dealt largely with airport management and continued for ten years, directed by Dodge from 1950 to

Fig. 4. Homer Dodge with two teachers of technical education in a Soviet technical institute in 1955.

Fig. 5. Visiting a science class in the Soviet Union.

1953. From 1949 to 1959 he was chairman of the Cabot Fund Administrative Committee.

Throughout his career Dodge has been a champion of engineering physics. He says, in fact, that at one time he thought he had invented it. A little research however disclosed that it had been launched at the University of Indiana in 1860, but the program had later been abandoned and forgotten. Dodge's interest was sparked by his early teaching which was mostly with engineering students. Many of these students found the courses in physics more challenging than those in electrical engineering and moved into physics as a major. The School of Engineering Physics was established at Oklahoma with the addition to the curriculum of only one course: Applied Geophysics. Dodge told his students who were to go out into the oil prospecting business that they would be designing new equipment which they would soon put into use, and that the university would be happy to receive the equipment made obsolete by their new designs. This happened as predicted and the geophysics laboratories stayed "nearly up-to-date."

In 1951 Dodge was rewarded for his concern with engineering education by being the physicist of the group organized by the American Society for Engineering Education at the request of General MacArthur to conduct a summer-long Engineering Education Mission to Japan. This was carried out through a series of conferences at the six national universities. He and Dean Hazen of MIT, the chairman, went early to set up the mission. Having been told to have some considerable social interaction with the Japanese, Dodge shortly found some interesting rapids, and arranged for boats to take the more daring members of the group for an exciting ride. He clearly became the promoter of pleasant relations with the Japanese. The mission itself was a great success, with free expression of viewpoints about engineering education by both parties. And Dodge had another beautifully illustrated lecture called Japanese Pageant.

In the summer of 1955 Dodge with his son Norton made a trip to Russia, and made the first study of Soviet education after World War II. The Russians had little interest in American education, but were exceedingly happy to show off their own educational system. The two men came back with a great deal of information and many pictures of apparatus and equipment for the teaching of

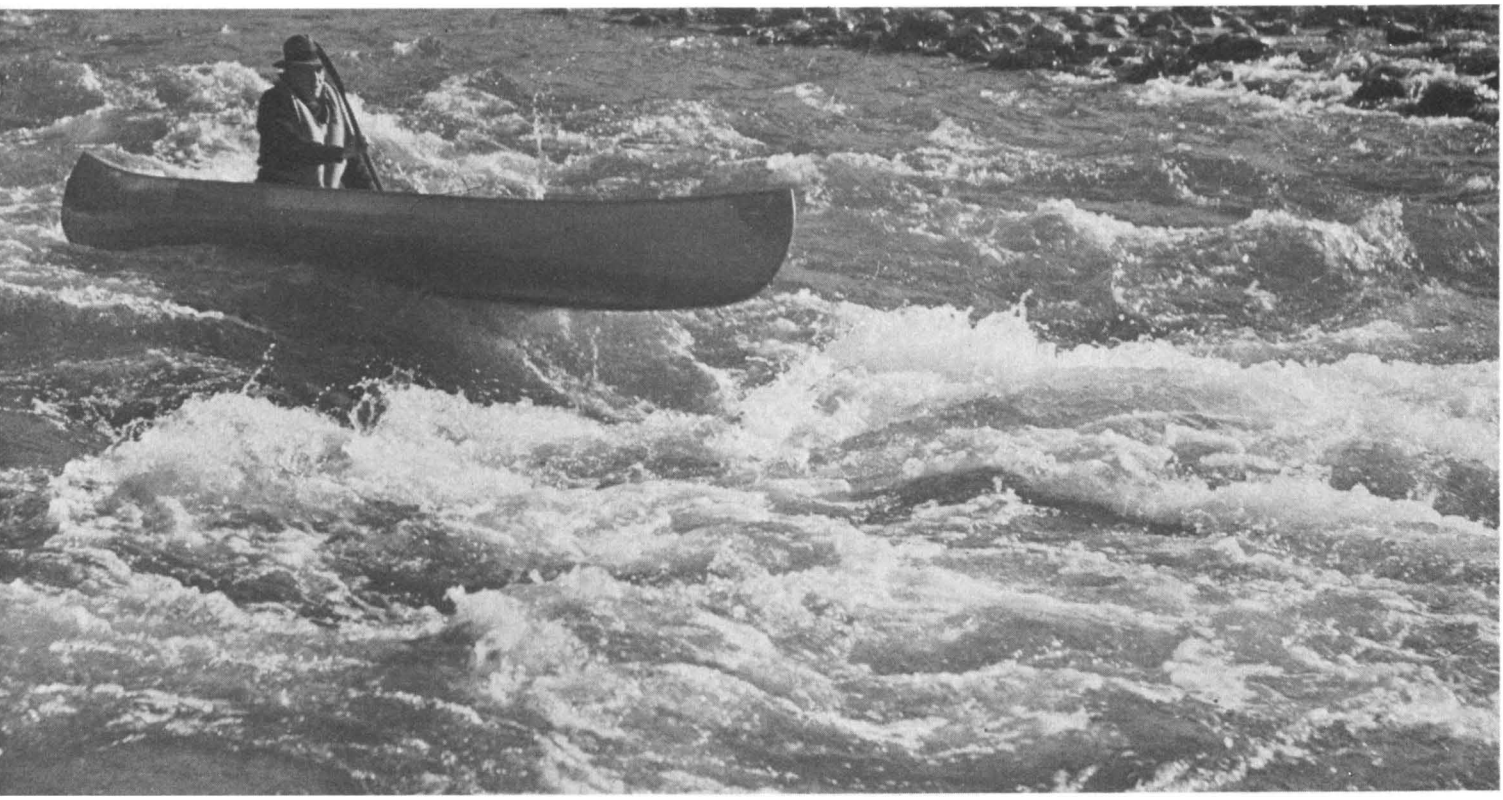

Fig. 6. Relaxing on the White River in Vermont while president of Norwich University.

physics. Much of their material was used in the Russian study published by MIT. The U. S. Office of Education used it in a book, and it resulted in four articles for *U.S. News & World Report* and over 100 talks by Dodge at educational institutions throughout this country, most of them as National Lecturer for Sigma Pi Sigma.

Even while he was engaged in these diverse activities Dodge managed always to get away to the St. Lawrence, his first love. He wanted his children to have the sort of exposure to the river that he had had as a youngster. He had met his wife Margaret, a Vassar graduate with an M.S. in psychology, through a mutual interest in canoeing. When she came to Iowa as a teacher of home economics Margaret asked his advice about purchasing a canoe and he obtained for her a handsome all-mahogany-finish canoe for $42. He jokingly recounts that it was such an elegant canoe he had to marry her to get it. He calls her his bow paddler. At the age of 69, when the St. Lawrence Seaway was soon to be constructed, he finally ran the north channel of the Long Sault Rapids, a run he had been contemplating for over 50 years. This was the only time these tremendous rapids had been run in a canoe since the days of the early fur traders when the rapids were far less difficult because the shore had not been altered by the construction of a ship canal. Soon after retiring as president of Norwich he and Norton made several long trips on the Colorado, San Juan, and Green-Colorado rivers in Utah and Colorado. He ruefully admits that a fine camera he acquired on his trip to Japan now rests at the bottom of the Green-Colorado River.

Fig. 7. First "ship" through the Eisenhower lock. Homer Dodge gives "safe conduct" to the heavy cruiser *Macon* after the formal opening of the St. Lawrence Seaway in June 1959 by Queen Elizabeth and President Eisenhower.

Fig. 8. Homer Dodge Canoe Room at the Thousand Islands Museum, Clayton, N.Y. Above the famous blue canoe is a map of the St. Lawrence River showing the many hundreds of miles Homer Dodge has traveled into every nook and cranny of the river.

Before his adventures in the west Dodge felt he needed a canoe sturdier than the one he had been using on the rivers, lakes, and streams of the east. He had an 18-ft Grumman built to his precise specifications. It was painted red, and was therefore called the "Red Canoe." Still later he found that the Red Canoe did not corner well in the white water slalom races he entered, and bought a 15-footer to use in racing. This was painted blue and thus became, of course, the "Blue Canoe." In it he many times won in his class in the White Water Derby on the upper Hudson. Now he is in the "mature" class, which he smilingly says really means "old," which carries with it a substantial handicap. But after he reached the age of 72 and was thus eligible for an increase in handicap he refused to accept it. He last raced in 1974 at the age of 87, and of course won his class. The Red and the Blue Canoes are now preserved for posterity in the Homer Dodge Room of the Thousand Island Museum at Clayton, New York, about 50 miles from Ogdensburg. The room was dedicated on August 9, 1974, and contains many memorabilia of his canoeing career: maps of his early trips of exploration, pictures of the Long Sault Rapids run, of the Blue Canoe escorting the heavy cruiser U.S. MACON through the Eisenhower Lock when the St. Lawrence Seaway was officially opened. Homer is pleased with the exhibit since it shows so clearly the pleasure to be gained by this early mode of travel which so well encourages communion with nature.

Homer Dodge is truly a man for all seasons, or all interests. Summertimes in Oklahoma he got away from the University, and became interested in the archaeology and anthropology of the southwest. He camped with the diggers, learned about Indian dances, and carried away with him a rainstone from the excavations at Pecos. He says today that he knows just when and how to talk to the rainstone, now in the garden at his home in Maryland, to bring relief to the parched ground. (Of course one needs to know something about meteorology!) These experiences led him to persuade the president of the University of Oklahoma to introduce a department of anthropology into the curriculum, a department which has been highly successful.

Dodge has never been afraid to tackle any project which seemed worth doing, and has always wanted to do the very best possible job. He was editor of his high school newspaper and manager of the football team. At Colgate he edited the college paper, managed the class annual, and published a college calendar partly for profit but mostly to make it the best that had ever been published, and sold Colgate posters for the boys to give to their girl friends. At Iowa he was treasurer of the Unitarian Church. Of this he says,"The man who keeps the books can exert more control of the situation than any other person." He told church members, when money was short, that if they would raise $800 more in the next year he would go to Boston and get a matching $800 from the American Unitarian Society. Go to Boston he did, and told the Society that if they would give $800 to the Iowa City church he would . . . . We know the rest; both swallowed the bait and both $800 amounts were raised. He accepted the position at Oklahoma essentially sight unseen. When asked by his friends what sort of

a department it was he had to say he had no idea. People were surprised that he would take a blind job. He said that didn't concern him. He had a firm belief in the future of Oklahoma and was happy to contribute to its development. If the university department was good, he had a better start; if it was poor he had that much more to do.

Dodge's inventive streak has functioned sporadically throughout his life. In 1915 he patented the Dodge Design rheostat. After selling the manufacturing rights to Cenco, Biddle, and Leeds and Northrup he found that the design required a more sophisticated approach than he had at first thought. He solved the design problem empirically, and later was proved correct mathematically. Until he moved to Oklahoma in 1919 he was closely associated with the Iowa Academy of Science, and as secretary of the Iowa City Art Society he arranged many exhibits of American art, complete with a critical catalogue which sold for ten cents. His satisfaction was in being successful, not in making money. In 1919 he published a book *Problems in Physics Derived from Military Situations and Experience*. With commendable honesty he admits that he later found many errors and some problems which didn't make sense. He was a member of the first education advisory committee for the Merchant Marine Academy. Later as chairman of this committee he was privileged to sleep in the captain's quarters of the academy's square rigged ship, a rare experience. With his usual promotional fortitude he managed not only to persuade Congress to maintain the budget for training, but also to get degrees from this institution approved.

We have a brief look at the diverse activities of a remarkable man. Much has been omitted, both of accomplishments and philosophy, but we have seen how his underlying interest of the "how" and "why" of what makes things "go" has been fundamental to all his activities. Today Homer and Margaret, both over 91 years old, live in a charming white clapboard house on their son Norton's 900-acre farm on the lower peninsula in Maryland. The Patuxent River flows by the house, there are deer, foxes, and coons in the woods, and the geese and white swans pay a visit every autumn. "In December," says Homer, "when we have a fine warm day, Margaret and I get in the canoe and go up one of our estuary-creeks to gather holly for Christmas."

Fig. 9. Happy Anniversary! Homer and his wife Margaret celebrate their 60th wedding anniversary (September 5, 1977) by paddling on Cremona Creek (estuary) where it flows into the Patuxent River.

References

1. M. Phillips, Phys. Teach. **15**, 212 (1977). This biography of Klopsteg gives other details of the events leading to the founding of AAPT.
2. This famous article was reprinted in *The Physics Teacher* [**14**, 30 (1976)].

The author first met Dr. Dodge through AAPT while trying to arrange a get-together at the New York meeting with a few long-standing members. The friendship was almost instantaneous. She subsequently made three memorable visits to Dodge at his charming home on the Patuxent River in southern Maryland. She spent a total of about seven days – and evenings – learning about his life, from his earliest recollections to his recent activities in retirement. The discussions ranged from philosophy to investment policy, from early days of AAPT to how to handle a double paddle, or predict the weather from an Indian rainstone. The result, truly an autobiography, is presented here with real affection for an outstanding man whose lifetime experience has covered countless activities in a wealth of milieus. As Homer Dodge himself says, "It is not often that when an association is preparing to celebrate its fiftieth anniversary the first president is still around to contribute to the celebration".