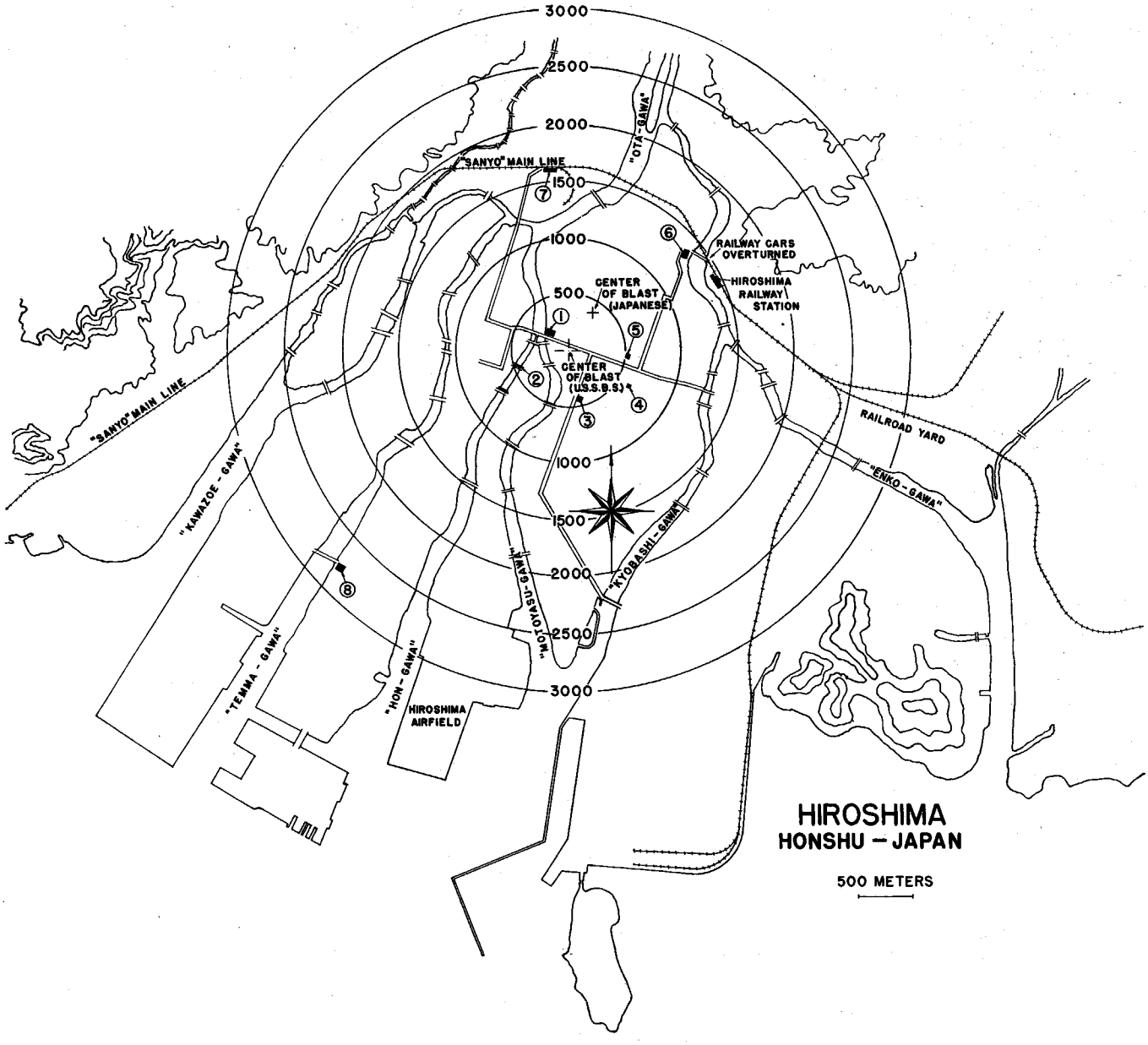


Symbols of a Changing World

By J. T. HAYWARD, Captain U.S.N.

IT WAS my fate to fight the Japanese during the hard, bitter days of Guadalcanal on the tortuous road back after the disaster of Pearl Harbor. Those days were grim and bitter, but many hours of thought were given to just what Japan and the Japanese were like. Our impressions gained by listening to Tokyo Rose as she played Artie Shaw's "Begin the Beguine" for us were of one type, while those gained in actual combat were of another. The blown-off heads of the Japs who had committed suicide rather than surrender also gave rise to the perpetual question, "What kind of people are these?" So it was with great interest and enthusiasm that I started on my trip to the home islands of Japan.

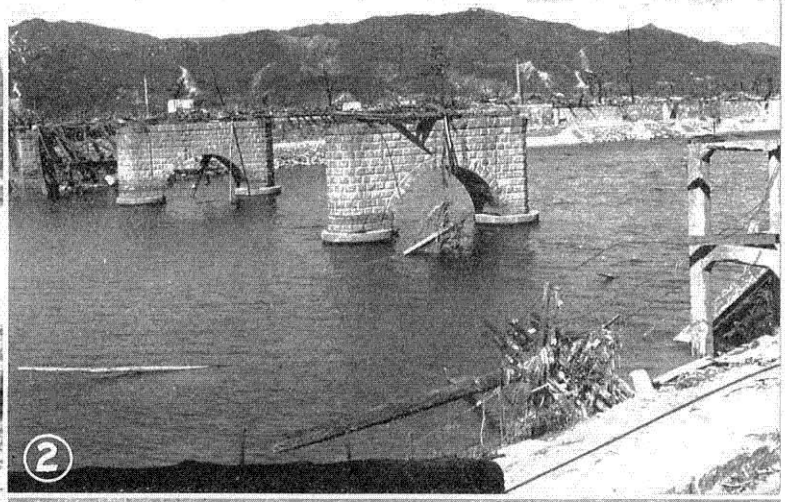
GEOGRAPHY

Japan's geographic position was a source of tremendous strength during the war. The Japanese leaders were astute students of geography. They realized that if they could get possession of the Philippines and the Dutch East Indies they could control the eastern half of Asia. And so their first drives in the early stages of the war reached these objectives. Through smart utilization of geography the Japanese likewise made our job much harder. Our men and supplies for China had to go

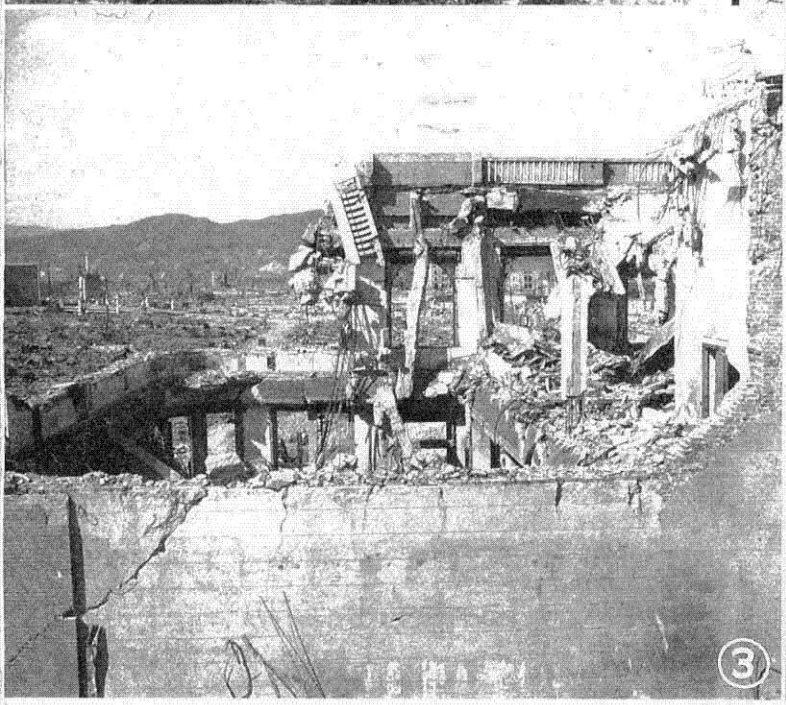
FACING PAGE:

FIGS. 1-8, inclusive. See corresponding numbers on map above. FIG. 1. Building approximately 250 meters from center of blast. FIG. 2. Bridge across Hon-Gaiva 500 meters southwest from center of blast. FIG. 3. Bank building 400 meters south of center of field. FIG. 4. Jewelry store 650 meters southeast of blast center. FIG. 5. Church 500 meters east of center of blast. FIG. 6. Barracks—Boys' Military School 1,300 meters northeast of center of blast. (See Page 6 for Figs. 7 and 8).

① 原爆ドーム

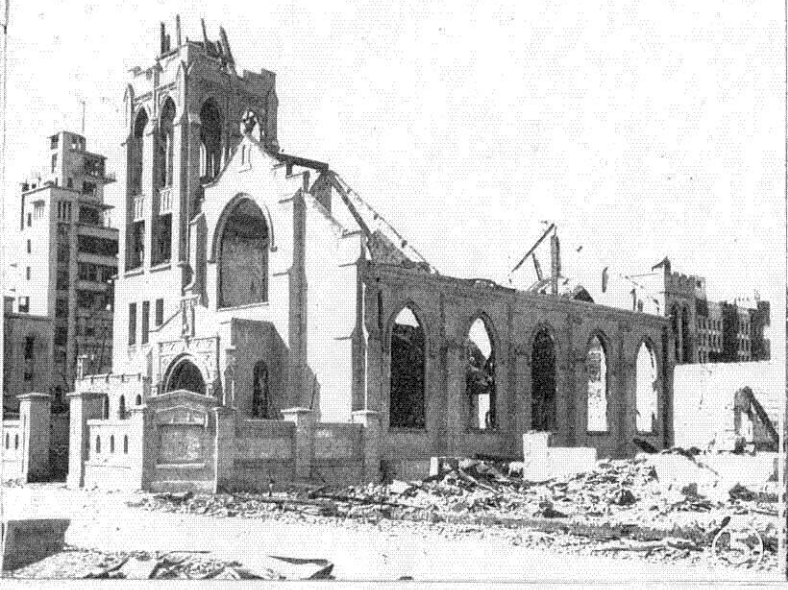


② 元安橋

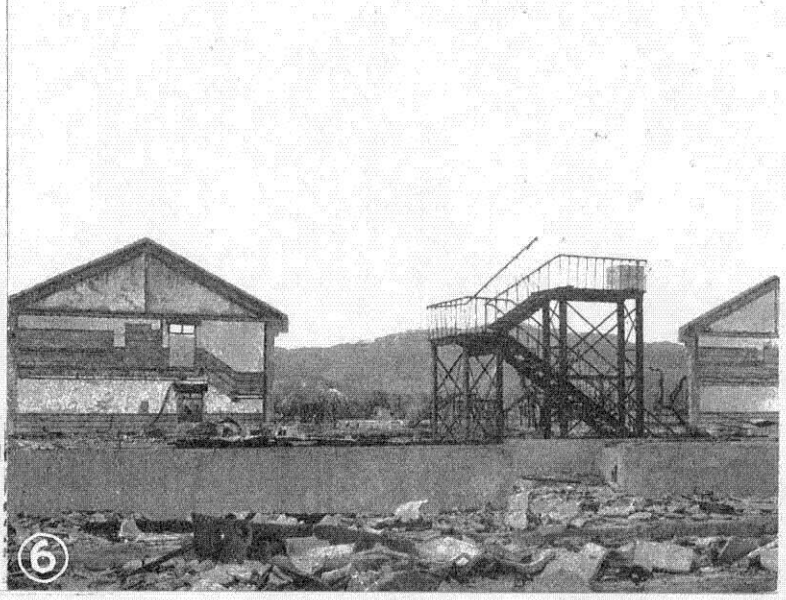


③ 広島県産業奨励館

④ 広島県産業奨励館



⑤ 広島県産業奨励館



⑥ 広島県産業奨励館

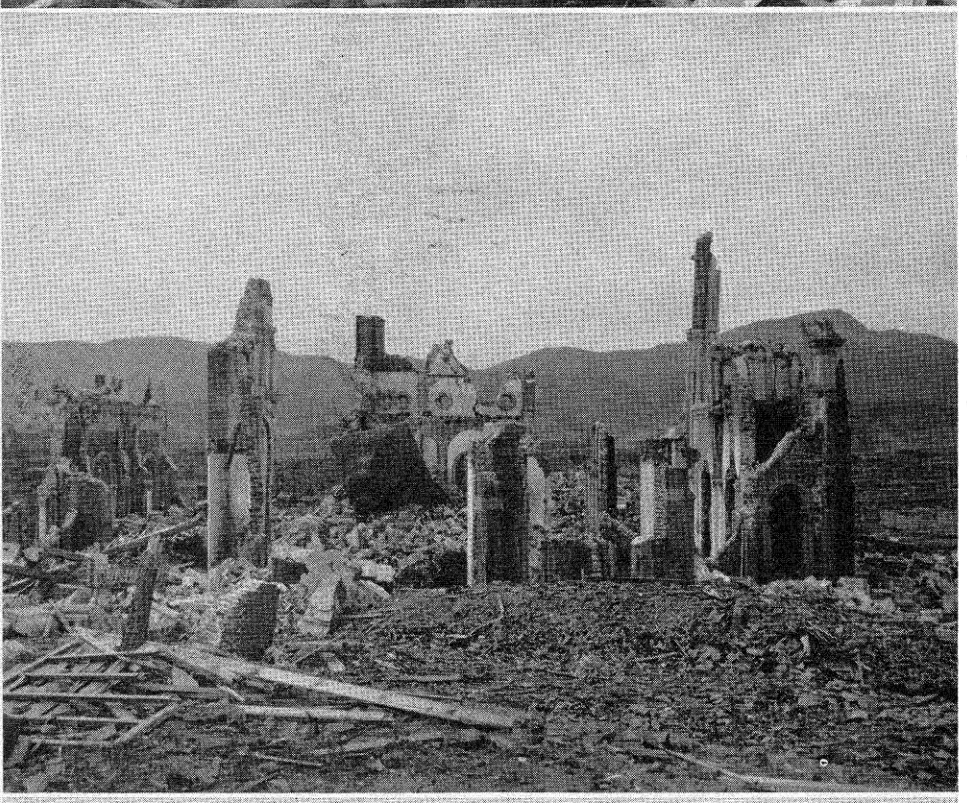
a quiet, meek, self-effacing, obedient little Jap at home becomes a raging beast when he goes to war. The explanation lies in his upbringing, the society in which he lives, the type of government which rules him, and the religious faith he follows. This brief and necessarily incomplete study is an attempt to clear up this seeming double nature of the Japanese so that his conduct may become understandable, even if it remain unpardonable.

As a member of the Strategic Bombing Survey in Japan, I had the good fortune to be able to see practically the entire country. While most of my work was of necessity centered in Hiroshima and Nagasaki, I was able to interrogate the highest commanders of the Japanese Army and Navy and the lowest peasants. To say that I understand the Japanese would be a great over-statement. However, I believe I now have a much better insight than formerly into their nature and a better understanding of why certain things occurred during the war that were then completely baffling to us.

It is dangerous to assign the characteristics of an individual to the nation. The Japanese differ among themselves less than do the people of any other large nation. America, for example, is a great mixture of races from all corners of the globe, and there is no such thing as a typical American. Our people do not have a common racial background. Our language had to be learned by millions of those who emigrated to our shores. But 70 million of the 72 million people who live in Japan proper are pure Japanese whose ancestors have lived in Japan for 2,000 years. From its earliest days Japan's life has revolved around the family. It is hard for us with our belief in the individual as the basic unit in our religious, social, economic, and political life to understand the tremendous difference produced by emphasizing the family. In Japan the individual is literally nothing, the group is everything. It may be a family, it may be a council, it may be a clan, it may be the Army or Navy, but it is always a group which exerts the power and the individual is lost in it. We are used to

AT RIGHT:

UPPER: Second floor of reinforced concrete building used as machine shop, approximately 1,500 to 2,000 meters from center of blast at Nagasaki. CENTER: Mitsubishi Torpedo Plant at end of valley approximately 4,000 meters from the blast at Nagasaki. LOWER: Looking west from directly underneath where bomb exploded at Nagasaki.



the leadership of strong men, outstanding personalities, who by their personal charm, magnetism, gifts or talents, draw men after them. Our history is full of great men. Japan can point to only a few, because leadership is wielded not by the individual but by the group. The effect is, of course, to destroy individuality and initiative and to force everybody into a common mold, and even if an individual should manage to maintain his independence of thought and break away from the repression of the group, he is crushed by the autocratic rulers above him who have always been determined to stamp out every trace of free thinking. The stifling of his individuality makes Fukuda San feel absolutely dependent upon his family or his group. He feels insecure at all times; he is afraid to think or act on his own judgment. In moments of stress he is likely to become panic-stricken or hysterical. He has no inward sense of his own power and authority; he hates to be alone.

It is evident from interrogation of many of the university graduates among the Japanese that the people have been bitter against their military leadership. These persons of superior training do not believe that the present wartime generation can be educated to democratic concepts and ideals. According to one Japanese Princeton graduate, it will be necessary for us to occupy Japan for at least twenty years to carry out the terrific job of re-educating a whole new generation of the people so that we may safely withdraw from the country.

FIRE-BOMBING

It is evident from observation of large cities such as Tokyo, Yokohama, and Kobe, that the fire-bombing of Japan was an outstanding success. The only major Japanese city that was not burned out was Kyoto, which is the old capitol. The stories of the frantic preparation of the Japanese to make their cities less vulnerable to fire were pure fiction. It was evident on all sides that no real government effort had been made to promote civilian defense and save civilian lives. Death is wonderful; it is great to die for the

(Continued on Page 14)

AT LEFT:

UPPER: Looking from wreckage of reinforced concrete modern structure, approximately south over what remains of city of Nagasaki. Note small cub landing strip. CENTER: Rear of church at Nagasaki, looking toward the blast. LOWER: Third floor of reinforced concrete building used as machine shop, approximately 1,500 to 2,000 meters from center of blast at Nagasaki.

trusteeship plan. It was also emphasized that at the present time piracy was the only crime for which a man could be tried in the court of any and every nation, and that international control of atomic energy would require a modification of international law to permit the control commission to institute legal proceedings against individuals rather than against states. If any plan for inspection and control of atomic energy were adopted it would have to be in the form of a treaty ratified by the individual members and not in the form of a binding regulation passed by a majority of either the Assembly or the Council.

The final conclusion reached by the conference was that a nation bent on aggression could not be stopped by the present system, and that to enforce atomic control it was necessary to have a limited world government in the sense that there must be a legislative assembly with no veto, limited taxing power, and the authority to institute legal proceedings against individuals. Such regulations would apply primarily to control of atomic energy but would probably have to apply to other problems as well. It was judged that Britain might accept such a situation (on the basis of public statements by Mr. Eden and Mr. Bevin) but that the United States and Russia might raise objections.

The conference obviously did not solve any of the world's problems, but it did serve to indicate the technical possibilities and limitations on control of atomic energy and the nature of the political changes necessary to make such control possible. By thus defining the situation to be faced, the conference served to clarify our thinking on this matter which so vitally concerns us all.

SAN FRANCISCO CHAPTER MEETING

Reported by Ted Vermeulen '36

A RECORD attendance of fifty-four alumni in the San Francisco Bay area took part in a dinner meeting Friday, March 29, at the Hotel Claremont in Berkeley. The address of the evening was given by Edwin M. McMillan '28, professor of physics at the University of California, who had an important part in the atomic bomb development at Los Alamos and also worked on radar and on submarine detection during the war. Dr. McMillan discussed the nature of the different nuclear particles now known and the types of the different nuclear particles now observed.

The following alumni were present:

R. E. Alderman '25
M. A. Baldwin '27
S. A. Bamberger '33
J. Y. Beach '36
A. S. Bishop '43
R. H. Bishop '39
R. B. Bowman '26
W. H. Claussen '32
R. B. Connelly '39
E. G. Crawford '33
J. D. Davis '34
H. H. Deardorff '30
W. L. Dickey '31
Ed Dorresten '24
L. H. Erb '22
Virgil Erickson '37
E. M. Farly '26
R. G. Folsom '28
L. D. Fowler '23
T. O. Gerlishe '19
N. L. Hallanger '34
R. J. Hallanger '35
J. J. Halloran '35
J. C. Harper '40
D. A. Harries '23
A. J. Hazzard '30
B. B. Johnson '31
W. J. S. Johnson '35
R. C. Jones '37
A. E. Jurs '38
P. H. Kafitz '42
H. E. Larson '27
G. E. Liedholm '31
J. F. Mayer '40
F. J. McClain '34
J. F. McGarry '31
W. W. Moore '33
A. E. Myers '29
D. S. Nichols '28
A. Polgar
D. J. Pompeo '26
W. G. Reynard '31
T. R. Sandberg '37
Q. M. Shultise '39
C. P. Smith '34
W. T. Stewart '41
F. B. Stitt '36
F. E. Strauss '33
Ted Vermeulen '36
H. G. Vesper '22
W. A. Wickett Ex-'37
H. M. Winegarden '24

Howard Vesper invited the chapter to hold its annual sports day at his home in Oakland, "Cactus Rock", again this year. The date was set for Saturday, May 25, and alumni in this area are looking forward to this outing as an outstanding event of a successful year.

Symbols of a Changing World

(Continued from Page 8)

Emperor. This was the theme followed all the way from the battlefields to the little man in the street who died in the bombing raids.

Another outstanding operation of the war was the mining of the home waters surrounding the Japanese empire. Interrogation of the Japanese mine experts brought out the fact that they had no known method of sweeping these mines and that the loss of shipping was terrific. Ships were forced to sail over known mine fields. During the months of April, May, June, and July of 1945, mines sank 65 per cent of the shipping that was lost. Throughout the war Japan's lack of shipping had been a severe handicap.

It was evident, too, that the work of our submarines had been even better than we had hoped for. Our submarines sank 45 per cent of the entire tonnage that was lost by Japan during the war. The Japanese started with approximately 7,000,000 tons of merchant shipping, built 4,000,000 tons, and ended with approximately 1,000,000 tons of which 500,000 tons were damaged. It was evident that Japan had lost the war at least a year before she actually surrendered. On V-J Day, she had only 1,000,000 gallons of gasoline in the empire, with no prospect of getting any more. She had had no Navy for almost eleven months, since the second battle of the Philippine Sea. Of her 14 battleships, Japan had lost 12, including her best and newest, the Yamoto and the Mushasi. She built 18 carriers and lost 18 during the war. She had but 4 remaining, only 1 of which was able to put to sea. Her losses included 33 cruisers, 157 destroyers, and 87 submarines. So it is readily seen that she had suffered complete destruction of her Imperial Navy, and there was practically no defense left or any method by which the Japanese could control the sea in order to import the necessary goods for sustaining the war effort. There was no love lost between Japan and Germany, although the Japanese were using many inventions developed by Germany. The Germans had made Japan pay through the nose for the trade secrets involved, and one of the experiences that made Japan most bitter against Germany was the discovery by the Japanese that our induction mines, which we had copied from the Germans and they had captured on the Shortland Islands, were duplicates of those that Germany had sold them.

It was apparent from talking with the Japanese scientists at the Imperial University at Tokyo that the Japanese military had made practically no use of their talents. The only exception to this practice was the Japanese Navy Department's request that the physicists at the Imperial University aid in solving the mine problem. However, as was customary, the entire problem was not given to the University but only a small piece, which was not sufficient for an intelligent attack of the problem. Throughout Japan only very few people were "in on" the complete plans for the war. No one trusted anyone, or if anyone did trust another, he didn't give him all the information involved. It was surprising to find senior captains of ships that had been in major engagements who did not know the entire battle plan.

The results obtained by our dive bombers at the battle of Midway were confirmed by interviews with Captain Aoki of the Akagi, which went down at the battle of Midway. The other three carriers, the Hiryu, the Soryu, and the Kaga, were also sunk in the same engagement. Captain Aoki stated that the Japanese were surprised

by our carrier planes, which they thought were down in the Solomon Islands. He expressed great fear of our dive bombers.

ATOMIC BOMBING

It will never be known accurately how many people died, either at Hiroshima or Nagasaki. Upon arrival in Hiroshima we found the devastation so appalling that it was impossible to visualize what the city had been like prior to the bombing. The same devastation, though not quite so impressive, was seen at Nagasaki. Because of the topography of this city, the extensiveness of the blast was not visible. Nagasaki lies in a valley, running approximately north and south, with many valleys and surrounding hills, while Hiroshima is—or was—a city lying on a flat plain with three rivers flowing through it.

In examining the survivors of the atomic bombing it was noted that blast victims as far away from the bomb as 2,200 meters (nearly 1¼ miles) exhibited flash and radiation burns. Outside of the 2,200 meter area, flash burns only were evident on survivors. The answer to the question as to whether primary fire had been caused by the explosion was given by victims, who in numerous cases testified that their clothes had burst into flame. While it is impossible for everyone in the world to view what was Nagasaki and Hiroshima, the pictures showing the devastation wrought by the atomic bombs should be published throughout the world in order to bring home to all concerned that the next war could be the end of what we know as civilization.

A Record of Achievement

(Continued from Page 3)

Air Corps. Nearly 2,000 of these were sent here for training over periods ranging from three months to three years.

Of course this shift to a war program upset the normal work of the Institute. Most of the regular peacetime activities had to be suspended. Laboratories and shops were turned over to war research and production. Members of the faculty were summoned from their classrooms and assigned to work of high responsibility and secrecy connected with government war contracts. Halls and corridors became crowded with the desks of accountants, auditors, computers, and filing clerks. The campus became strangely bedecked with femininity as hundreds of young women were requisitioned to manipulate typewriters and adding machines, and even to do mechanical work in the laboratories. Dormitories built for 300 civilian students were stretched to house nearly twice that number of naval trainees. In addition, numerous buildings off the campus had to be built or leased to accommodate the overflow of war work. At any rate the California Institute did everything that the government asked it to do and did it willingly.

Now we are confronted with the task of reconversion. As soon as practicable the normal peacetime program of instruction and research will be resumed. There will be changes, possibly a good many of them, in order to keep the Institute abreast of the times; but it is not contemplated that there shall be any radical departure from the landmarks which have guided the course of progress in the past. Twenty-five years ago, on November 29, 1921, the Board of Trustees set forth in a series of resolutions this general picture of what they hoped the California Institute would some day grow to be. It is interesting to re-read these resolutions after the lapse of a quarter of a century and see how largely the original objectives have been reached.

Briefly, the plan of 1921 laid emphasis on the following features: (1) a limited and carefully-selected student body; (2) emphasis on training in the basic sciences of physics, chemistry and mathematics as the essential preliminary to a sound engineering education; (3) an adequate place in the curriculum for the humanities; (4) the active encouragement of research in all departments, and, finally, the concentration of the Institute's financial resources on a relatively few fundamental subjects rather than an expansion into all the fields of human knowledge, —in other words, the policy of trying to do a few things well rather than many things indifferently.

These are still the chart and compass which guide both the faculty and the trustees. But the lapse of time, and more especially the developments of the past four or five years, have suggested the need for an even greater emphasis on certain fields of scientific research. One of these is the field of nuclear physics, a branch of physics in which the Institute has pioneered in the past but must now go a good deal farther. The appointment of Dr. J. Robert Oppenheimer to a full-time professorship will greatly strengthen the Institute's staff in the domain of atomic research. On the other hand, the loss of Professor William V. Houston, who leaves us to become president of a sister institution, the Rice Institute in Texas, will be severely felt. Dr. Houston, who has been with us since 1931, leaves a gap which will be hard to fill. He goes to his new post with the good wishes of everyone connected with the California Institute. Similar good wishes are extended to Professor Ira S. Bowen who has recently become director of Mount Wilson Observatory.

In this connection it may be permissible to mention that plans are now under way whereby the Mount Wilson Observatory and the new Institute Observatory at Palomar will be operated as a joint enterprise when the new 200-inch mirror is finally installed at Palomar. Barring unforeseen delays this giant block of glass, the completion of which has been so badly delayed by the war, will be in place within the next year or so. Together, these two observatories will make southern California pre-eminent in its facilities for research in the fields of astrophysics.

Among other notable new appointments to the faculty, it is appropriate to mention the coming of Dr. George W. Beadle, a distinguished scholar who assumes the chairmanship of the Division of Biology. Other noteworthy additions to the teaching and research staff are under consideration and will be announced in due course.

Meanwhile the Institute has lost by death two of the most outstanding men in its academic circle—Thomas Hunt Morgan, Emeritus Professor of Biology, and Harry Bateman, Professor of Mathematics. Among geneticists of his time, Dr. Morgan was *facile princeps*. Winner of the Nobel Prize in Medicine, he deservedly received recognition from universities and learned societies in all quarters of the globe. At the California Institute his exalted standards of scholarship, his wise judgment in matters of academic policy, and the charm of his personality gained for him in high degree the admiration and affection of everyone with whom he came in contact. The recent death of Professor Bateman has likewise removed from our academic circle a scholar of world-wide reputation in his field, whose eminence was attested by his election, some years ago, as a Fellow of the Royal Society of London.

Some problems of serious urgency must be given attention by the Trustees within the immediate future. One is the increase of faculty salaries. Since 1940 the general scale of salaries has been increased by only ten