Philippine Islands

Q: In October 1937 you went to the Philippines as adviser on engineering projects for hydropower and flood control. Were you asked to accept this duty because of your experience in both hydropower and flood control?

A: President [Manual] Quezon and General [Douglas] MacArthur made a trip to the United States shortly before then, and General MacArthur, being a Corps of Engineers officer, decided that for this work he thought it would be best to get two Corps of Engineers officers. So he contacted the Chief of Engineers' Office. [Major] General [Edward] Markham was Chief at that time, while Lucius Clay was at my former job at the Rivers and Harbors desk. I assume they had a conference there, and they recommended that Lucius Clay and I be sent. Lucius then contacted me. He said that they wanted me by reason of my Passamaquoddy experience and study and research over in Europe and whatnot, and asked if I'd be willing to go too. So I contacted Dorothy, who agreed. As a result, Lucius Clay and I were ordered over there. It wasn't because of any request that we made, but it was because of General MacArthur's and President Quezon's request that two Corps of Engineers officers be assigned, and we were the two that were sent.

We both left with our families, leaving by Army transport from New York, so it wasn't a major rush operation because it took us, I guess, 40-odd days from New York to go all the way around through the Panama Canal up the Pacific Coast and then on over ultimately to Manila. But we had a very enjoyable trip, with both families together on the transport.

Q: What was the nature of the work you were to undertake in the Philippines?

A: The Philippines were due to have their independence in some few years. With an independent country, it is essential that they develop their own basic resources and try to do everything they can within the country to reduce their external demands for things that call for foreign exchange. You try to balance your import-export to attain a stable currency. If your demands for items outside of the country are far in excess of your economic capacity to pay, you're in trouble.

So it was desirable, therefore, to develop the hydroelectric sources in the Philippines to the maximum extent because oil was expensive (though relatively cheap compared to the present) and they did not have a source of oil or coal. All that had to be imported, so it was therefore important to develop to the maximum the hydroelectric power potential of the Philippines.

Q: What projects were you assigned to undertake?

A: We were assigned no projects. We were just given a blank check. Lucius and I got such maps as were available, geological survey maps, although they were limited and not to large scale. We also assembled all available hydrographic data. We made a general analysis of the situation. We found out what the current power sources were, principally MERALCO, the Manila Electric Company, that controlled the principal power generation and distribution, particularly in the metropolitan Manila area. There were also some small power companies scattered through the Philippines which consisted largely of small diesel electric units and the diesel power units that the principal mining companies had. Then, based on the map study, we sought out the potential waterpower sources, then made extensive field investigations.

Lucius and I probably covered on foot more of the Philippines than certainly any other American and more so, I think, than most Filipinos. We reconnoitered the Agno River from its source down to its mouth, wading down through a stream which was subject to sudden, very high flooding in the narrow gorges, sort of a risky procedure. We started out with a raft but the raft broke up after several trips through the rapids. We had *cargedores*, native carriers who carried our supplies. We'd have maybe 15 or 20 Filipinos carrying our supplies and provisions. En route we'd make notes of potential dam and power sites and such.

We made a similar survey of the Agus River up in the northeast, from its headwaters down to its mouth. We covered a number of the small streams in the central Philippines. They had minor potentials. We made extensive studies down in Mindanao and particularly on the Lake Lanao potential. There in Mindanao they have this huge lake several thousand feet above sea level and only 5 or 6 miles from the sea, with the major fall concentrated in two series of rapids. We saw there was a wonderful possibility of building a relatively small dam providing a vast reservoir area for each foot of dam

elevation, offering millions of acre feet of potential storage. With this concentration of fall, you could build a large powerhouse below the first rapids and then another series of penstocks and powerhouses down below. That project could have developed the cheapest large-scale hydropower that you could imagine most anywhere, because the dams and the structures were relatively inexpensive in comparison with their potential output. It also provided firm, dependable power because of the excellent source of rainfall and the wonderful opportunity to equalize the flow due to the large reservoir capacity on the lake. But you had no market. The existing market then was about 50 kilowatts at Dansalen and 50 kilowatts at Illigan. So if you turned out a million kilowatts of power, why you had a problem with what you could do with it.

We did foresee that in the future there was a great mining potential down there in Mindanao as well as a vast agricultural and industrial potential. Since then, based on our preliminary plans, it has been developed and is very, very successful. Anyway, we prepared preliminary plans for such developments in Mindanao, Luzon, and elsewhere, with rather detailed plans on the Agno River.

We wanted to make sure that the first project we built would be a highly successful one. If we went into something and it flopped or it cost far more than anticipated or it didn't function economically, why that would be the end of the National Power Corporation.

The government had set up this National Power Corporation and we were the engineer advisers to it, making the engineering development studies. Lucius, however, wasn't sort of a hundred percent behind the idea of development by the government. I think his views were more in connection with preparing plans for development by private utilities. He wasn't directly against it, but he wasn't as enthused over that as much as I. In any case, after our first year, his son Lou had just flunked out from West Point and had been turned back to the next class; and his other son, Frank, was then seeking an appointment to West Point. Lucius had had many contacts with congressmen and senators, so he decided he wanted to go back and try to see about getting the youngsters back to the Point. So he left and was soon assigned as district engineer on the Dennison Dam—a major power project which he handled very successfully.

At any rate, for the next two years I continued on and finished up the plans for this first project on the Caliraya in addition to the other investigations. There we planned to dam up the Caliraya River at its outlet from a large flat plateau area providing large reservoir storage. The dam was over 100 feet high. We designed it as an earth dam from which we constructed a diversion canal several miles to the head of a steep slope about 950 feet above the lower bay level. We constructed a large surge stock and penstock down to the powerhouse below, with a tailrace to the bay. The high head permitted the use of high-speed turbines and generators at relatively low unit costs. I prepared the basic plans and estimated the cost at $5 million, or 10 million pesos, for this 40,000 horsepower project.

My office was in General MacArthur's headquarters, but neither he nor Lieutenant Colonel Dwight D. Eisenhower, who was chief of staff, had any particular interest in our hydroelectric engineering phase. Their concern with us was mainly with our relations with the Corps of Engineers of the Philippines Army, whom we were also training.

So we were going along independently on the power study phase. But when it came time to submit this initial power project report, President Quezon called on General MacArthur for its submission. So Ike Eisenhower and I and Mr. Rodriquez of the National Power Corporation proceeded to Malacanaan and I made the presentation. Quezon asked a number of questions, while Ike was just present listening. Anyway, Quezon, before I was even through, said, "Fine, we'll build it. " So that was the authorization for the first hydroelectric project in the Philippines and the successful start of the National Power Corporation.

Then we went in and proceeded to build it. We did not advertise for a bid for a general contractor to do everything, requiring getting one from the States, but for economy reasons we decided to do it almost piecemeal. We had one contractor building the dam, another one building the structures, another one on the pen stocks. We received low bids for the turbines from Pelton Water Wheel, from General Electric on the generators and the 50-mile transmission line to Manila, and from Westinghouse on the transformers.

We also had bids from Hitachi, a Japanese firm. It's a big firm, and they bid on the generators, transformers, and turbines. When their bid came in, they were almost 40 percent below the low bid from the American

equipment manufacturers. But we had a provision in the Commonwealth law that a foreign manufacturer was subject to certain percentage penalties in evaluating his bid. For example, bids on foreign equipment were subject to a 15 percent incremental penalty with an additional 15 percent if from a foreign supplier. And then there was an exchange differential, which was about another 15 percent. So as a result I strongly recommended that we not take the Hitachi equipment, even though lower in cost. If we had, as war broke out later, we would have had untold problems.

The local Philippines construction contractors lacked any heavy earth-moving equipment, so in order to afford them an opportunity to bid, we purchased a quantity of bulldozers and carryalls indicating in our bids that it would be made available to the successful bidder, thereby increasing local competition and reducing costs.

I might add that I set up the first hydraulic laboratory and the first soils mechanics laboratory in the Philippines for model studies and control. I was the sole American engineer on the project, utilizing all Philippine personnel.

But anyway, we proceeded with it and finished the project, building it within the bond issue, which was ultimately paid off. The project was most successful and created a firm foundation for the National Power Corporation. The attitude of the Filipinos was that with the government producing the power, they should also go into direct distribution to the public. At that time MERALCO had all their distribution lines throughout Manila, and we were building the transmission line from our plant to Manila, to a large transformer substation there.

I strongly advocated that we sell our power by contract to MERALCO under controlled prices, giving us an assured and profitable market, avoiding wasteful construction of duplicate distribution lines. Furthermore, with government distribution the politicos would be prone to demand that power be brought to their various localities even at an uneconomic cost. We required that MERALCO take a specified amount of output at a high-capacity charge, assuring a specified profitable annual payment. We also set a low energy charge, thereby ensuring that they would use this power rather than their higher cost fuel-generated energy. And we could also control their rates. But anyway, it was a very successful operation.

Concurrently, we prepared preliminary plans on other streams such as the Agno, the Agus, a major development in Mindanao, and later on, after the war, the National Power Corporation got back into business developing these projects on the Agno, on the Agus, Lake Lanao in Mindanao. It has all been a very, very successful operation since.

Incidentally, President [Ferdinand] Marcos, the last time I went back, in 1972 as a guest of the Philippines Government on their 30th anniversary of the fall of Bataan and Corregidor, wanted me to return as a consultant. He called me the "Father of water power development in the Philippines. " They dangled a very enticing contract, with a handsome retainer plus rather high compensation for any work in my office up in Vermont or down in Florida. I could travel with Dorothy, first class, anytime we had to go to Washington, the Philippines, Japan, or elsewhere incident to funding, engineering, or equipment. But Dorothy and I decided I had been out of action too long, and we were going to enjoy our retirement. So I thanked them very much. At various ceremonies they also presented me with one of their highest decorations, plus other awards and plaques, for both my national power and subsequent military service as General MacArthur's chief engineer.

Q: What did you think of the Philippines when you got there?

A: The Philippines in 1937 was relatively underdeveloped. Copra and sugar and some gold mining were the major industries. In agriculture they used only *carabaos,* hand tools, with the natives working the fields. They did not have any heavy agricultural equipment.

One of the principal industries was the mining industry up in the Baguio area, in certain sections of the northeastern part of Mindanao, and some areas in the central Philippines. So I did make contact with them because they were potential power users. They were all developing their power from diesel electric plants. When we were investigating the potential power development areas, we also were making studies of potential power markets. So we would try to find out what the requirements were for existing industry, and what potential industries might come in and be developed with a cheap source of power. But the Philippines was a pleasant place to live.

Unfortunately, insofar as preparation for war is concerned, I regretted that the military section of our staff operated on only a half-day basis. They would start in the morning and maybe shortly after 1:00 P.M. they'd leave for lunch, with their afternoon free for golf, polo, or whatnot.

Lucius Clay and I had our office also at 1 Cane Victoria, General MacArthur's office as military adviser to the Commonwealth. The general wouldn't come in until about ten or so in the morning, and he'd be there until maybe about one to two. Then he went off and that was the last you saw of him. He'd have lunch and then a siesta.

General MacArthur's Manila headquarters at 1 Cane Victoria, late 1939. From left: Lieutenant S. L. Huff (aide and naval advisor), Major William F. Marquat (antiaircraft officer), Lieutenant Colonel Richard J. Marshall (deputy chief of staff), General Douglas MacArthur (military advisor to Philippine Commonwealth), Lieutenant Colonel Richard K. Sutherland (chief of staff), Major Hugh J. Casey (engineer advisor to Philippine Commonwealth), Major William Dunckal (staff officer).

Ike Eisenhower and the others on the staff would be there in the morning until General MacArthur left, and then they were off for the afternoon. So in the afternoon, Lucius and I (and then later, after he left for the States, only I) were the only ones working throughout the day in this headquarters because the military group had done their job and left.

In addition to the power development function, which was our principal assignment, we were also given the mission of supervising the training of the Philippine Army Corps of Engineers. We got to know all the principal officers of the Philippine Army Corps of Engineers, which was most helpful to me later as Chief Engineer, GHQ, when war broke.

There was a great need for mapping in the Philippines, particularly for our hydroelectric studies. We worked closely with our staff air adviser, who was working with the Philippine Air Corps, and got him to take us on numerous aerial missions over potential power sites, which we later on covered on foot through rugged mountain and jungle areas.

Appreciating the need for maps, I set up a procurement program for aerial photographic mapping equipment, cameras, and equipment to develop maps from the aerial photography. We also trained the Philippine Army engineers on their use, initiating their aerial mapping function.

Most of the rivers with potential hydropower development had very deficient hydrographic data as to their discharges. So we set up hydrographic stations at critical points on these principal streams in order to get a continuing record of flow as a basis for determining the power potential, such as the mean flow, as well as the high and low flows.

Q: Had you ever met MacArthur prior to your assignment to the Philippines?

A: No, not until then. Nor had Lucius Clay.

Q: What were your impressions of him?

A: I had a very favorable impression. He was erect, dignified, and very articulate. When we went in, he had us sit down while he walked back and forth briefing us generally on what the overall situation was. He expected

that we would take care of the plans and studies for potential hydroelectric power development as well as supervise the training and development of the Corps of Engineers section of the developing Philippine Army.

He said, that's your mission. Now, from here on you're on your own. He said, you have no specified hours; you do not have to come to me; we're not going to tell you how to do it or what to do. That is your function, that is your responsibility and so on. However, in case there's some special problem on which you need special assistance, why feel free to come in. In 10 or 15 minutes we had had a very pleasant meeting and that was our assignment. In other words, he delegated the whole thing to us.

Q: So you must have worked more closely with Dwight Eisenhower?

A: Yes, but not particularly, except in connection with the Philippine Army activities. I' m talking now of that early phase, because our primary job was the hydroelectric power survey and development program. The remainder of the staff were a group apart, concerned with the development of the Philippine Army. They developed training programs, sought appropriations of funds, which unfortunately were being cut back and cut back, and endeavored to get arms, munitions, and equipment from the American forces and the government. However, I felt that the military staff was not doing quite as much as I felt they should be doing. Certainly, if I had been in there I think I'd have been much more active and working more on the problems that they had.

Q: What were your impressions of Eisenhower at that time?

A: We liked Ike very much. He had a very nice personality. His attitude toward Lucius and me was excellent. Even though MacArthur and Eisenhower didn't know much of anything about what we were doing in our civil work, nonetheless they had to prepare our military efficiency reports. I was startled one day, this was after Lucius had left and I had made my presentation to President Quezon about the Caliraya project and had embarked on it, when he called me in after he had prepared my efficiency report. He said, "Pat, I want you to see it, " and then said, "that's the best efficiency report I've written on any officer in my command. " So apparently I stood very well with Ike.

Ike was well liked by all of those there. I think it was after [Richard K.] Sutherland (then a major) joined us you could sense that Sutherland, who appeared to be a very ambitious person, seemed to be undercutting Ike. You could sort of sense that he wanted to get closer and closer to General MacArthur than through Eisenhower, seeking to replace Ike as chief of staff. It was then that you sensed a little coolness developing between General MacArthur and Ike.

There was no abrupt break, such as inferred by rumors, but I think Ike felt that maybe there would be a better opportunity for him back in the States, in case things developed world war-wise, such as with the War Department or on some command assignment rather than continuing on with MacArthur as his chief of staff.

Q: Was that because the position there as MacArthur's chief of staff really wasn't in the Army; it was sort of a strange position?

A: As we've said, General MacArthur was military adviser. He had no command over the Philippine Army. They did make him a marshal of the Philippine Army, but he did not exercise direct command. They did call the various Philippine Army general officers and their chiefs of staff in for conferences, but primarily on administrative, equipment, and training matters.

I felt that General MacArthur and some of the others should have gotten out more into the field with the Philippine Army units in connection with their training or observation and so on. It seemed that our staff did most of their activities just there in the office with administrative problems in connection with getting funds and getting equipment and matters like that.

Q: Speaking of administrative problems, what were the relations between MacArthur's staff and the Philippine Department commander's staff like?

A: We were two independent entities. The department commander commanded all of the American troops, including the Philippine Division at Fort McKinley, but we were a group apart.

We had friendly relationships, but did not have the close contact that I think they should have had. The Army did have its defense plan, the so-called "Orange Plan. " General MacArthur decided that they should work up a new defense plan involving the developing Philippine Army, but I didn't think they made too much progress on it. It was still being developed at the time that war broke. He had developed a program to organize, train, and develop ten Philippine Army divisions each year. We were going to get 10,000 men each year for six months' service that would be trained and then they would go into the reserve. And then the next year get ten more divisions, and so on, building up to a force of one million in ten years, less attrition.

But you didn't have tanks, you didn't have artillery, you didn't have machine guns, you didn't have heavy equipment, and little transport. The engineer units didn't have anything much more than hand tools. You had a division made up mainly of manpower. Their hand weapons were Enfield rifles which had been discarded as surplus after World War I, and they were big, heavy weapons for small Philippine soldiers.

They also had serious funding problems because, I don't recall exactly what it was, it may have been 30 million pesos a year, and then President Quezon cut it back to as little as maybe 10 million pesos a year. I know there was a drastic reduction in the national defense appropriations, and MacArthur opposed that and felt that they needed much more, and they actually did need more. They were also trying to develop the Philippine Air Force, as well as a small Philippine Navy composed of small PT (patrol torpedo) boats. But the task was just so far beyond the money potential or other potentials that it was almost impossible.

In any case, MacArthur was developing this thesis of stopping the invasion troops at the beaches. He was going to hold them there. And when you consider all of the coastline of the Philippines and the limited personnel and limited equipment that they'd have or would have, even at the end of ten years after you supposedly had a million trained people, less attrition, it still seemed to me as an impossible goal. It looked like a hopeless task to try to develop the Philippine Army, Air Force, and Navy contingent capable of withstanding a major enemy attack and holding them at the beaches.

Q: So you wouldn't say that by the time you left the Philippines in 1940 the Philippine Army was any more able to defend themselves than it had been when you first went there?

A: Well, you had trained, to a degree, ten such divisions. I think the ones that had the best training-and I'm not saying it because I was associated with it, because there were reasons other than that—but I felt the best units in the Philippine forces were the Philippine engineer units.

Now the reason was that Philippine engineer unit officers were basically all engineer school graduates. They had gone to the university; they were engineer-trained, so they were generally educated and technical. Whereas many of the officers in the infantry and so on in the other Philippine units were sort of run-of-the-mill Filipinos, some political appointees, and as a group were not nearly as well qualified as were the Philippine Army engineer officers.

Shortly before the war broke out we called the Philippine engineer regiments into active duty about a month before they mobilized the divisions. That was because we were using the Philippine engineer troops on construction, preparing the cantonments, roads, water supply and utilities for the cantonments where the divisions were going to be located. So the engineer units did have some active duty under their commanders when the war broke, having been on active duty for a month or so, whereas all the rest of the Philippine Army were mobilized just about a week before the war broke. And they had not had staff experience or other exercises as tactical units. The Philippine Army division was not an able, tactical unit, and it was going to have and did have great difficulties in combat against the trained, aggressive, and well-equipped Japanese Arm y.

Q: Apparently the War Department was reluctant to spend money to improve the defenses of the islands or to provide the forces necessary to defend the islands because the Philippines were going to obtain their independence in the middle of the 1940s. From your experience, do you believe that was true?

A: Oh, absolutely, and mainly due to their impending release from US control into independence. First of all, we were getting hardly anything for several years before the war broke. It wasn't until shortly before the outbreak of the

war, several months or so, when they recalled General MacArthur to active duty with a program to reinforce and strengthen our defenses. He had been military adviser to the Philippines, and they then appointed him commanding general of the US Army Forces Far East (USAFFE). That was an indication that here we were finally getting ready to develop a joint force to defend the Philippines.

They finally started giving approval to some of our requirements for signal installations, such as radar, and approval for additional artillery, some tanks, and they started to send additional units and equipment to complement our forces. But at the outbreak of war, our only US engineer units were the 803d Engineer Aviation Battalion, an engineer supply company, and the Philippine Scout combat engineer unit that was with the US Army Philippine Division, the Philippine Scouts.

And then one of the unfortunate things was, just shortly before the outbreak of war, the War Department decided that the engineer component of a division should be reduced from a regiment to a battalion. It worked in one way favorably for us in that we had a number of Philippine Scout engineer units providing a nucleus of some trained key Scout personnel with the various Philippine Army engineer units. And they were badly needed.

The Philippine Scout division as a whole was excellent, and the engineer battalion that was with it also was outstanding. One of the other American units we had was a small tank unit, as well as a cavalry unit. They were to be the last ones to engage in a cavalry action in any American war.

All the Philippine units lacked transportation. When the war broke we requisitioned or commandeered buses, we commandeered trucks, cars, almost anything in order to supplement or provide some of the basic essentials for these units.

Q: Did you have any familiarity during your time as adviser to MacArthur with the War Department planning that was going on for the defense of the Philippines, such as the war plan Orange 3?

A: Not particularly. I mean, I wasn't called in on it and wasn't other than vaguely familiar with it because—1 don 't know whether they were keeping it hush-hush or because during 1937-40 I was primarily busy with our civil

work activities. When I got back in October 1941 that plan was being developed. And by the time I got back in October, just shortly before the outbreak of war, whatever they had been doing had been done or was in the process of being completed at that time.

Q: What were your opinions of MacArthur's other advisers, such as Sutherland?

A: Sutherland had a difficult task as chief of staff for MacArthur. MacArthur was not one who would call in his commanders and other subordinates to issue his instructions but routinely did so through his chief of staff. The chief of staff was the medium through whom communications went and so on. MacArthur had difficult hours, from sort of late in the morning and then a siesta in the afternoon. This was before the war broke out.

MacArthur had a brilliant mind and a fantastic memory. He could get a cable or telegram, look at it, put it down, and it was just as though he had made a photographic image of that thing in his mind. Just as though he had taken an Instamatic camera and recorded it, because he would walk up and down and could refer to the specific paragraphs and words in its content.

And intuitively he could come to a decision. Usually when you're deciding on a problem, you try to figure out the advantages, the disadvantages, and so on before you come to a decision as to what to do. But he had sort of an instinct of analyzing these factors, and with an almost computer-like brain, and could make a hasty decision which usually was correct.

Sutherland, as chief of staff, was not liked by many of the commanders because he could be sort of gruff and terse in his transmission of instructions. Some of the commanders who outranked him were not particularly fond of him. But I think he did a good job as chief of staff under the conditions that prevailed. He ran into some personal problems later, but those were personal problems.

Q: Did MacArthur ever talk to you about his time in the Corps of Engineers?

A: Never that I recall.

Q: Did he indicate at all that he believed that a war with Japan was inevitable?

A: Oh, I think he strongly sensed that. You sensed that in his discussions. And I think he was irritated over the lack of a similar feeling on the part of the War Department and the Washington administration to recognize that fact.

Q: What was life like for an Army family in the Philippines in the late 1930s?

A: It was a very comfortable life for the American family, both civil and military. Servants were plentiful and available at low cost. We had a chauffeur, a laundress, two houseboys, and gardener, and all for less than what one servant would cost over here.

Food was relatively cheap and ample. Some things were a little difficult to get, but by and large it was very pleasant. The officers club was superb. Horses were available for equitation, and Fort McKinley had a fine golf course, with caddies, mostly girl natives, available at 50 cents (1 peso) for 18 holes.

Q: Who were some of your Army acquaintances in the Philippines?

A: In the Philippines? Well, Lucius Clay, my former West Point roommate, was there with me for the first year. We also had other classmates. Captain Leland Hewitt, who later during the war served with our Far East Air Force as air engineer of that command. Lloyd Mielenz was on duty as deputy to Colonel [Henry H.] Stickney, the Philippine Department engineer. And then we met other friends of other branches. [Major] General [George] Grunert was there as Philippine Department commander of the US forces. And a number of others whose names I can't recall right now.