

The New Engineer in the Philippines

• By Earle W. Bedford

The unprecedented influx of mining engineers to the Philippines as a contributing factor to the general extension of mining interest in development of new areas of mineral potentiality again denotes, and commands, the resourcefulness characterizing the successful engineer. He is here confronted with problems presenting considerations of such differing nature than those having been common to his previous experience, or as may have developed during his training, that only those able to adjust themselves to conformity with the new environment are assured of any degree of early success.

He is to eventually, if not forthwith, find himself identified with a chaotic, and conflicting, situation of mining claim title which has apparently not been clarified—probably due to a great lack of desire among certain claim locators to have the legality of their locations determined at court, particularly when there is an existing element in toleration of the prevailing recourse to bolos, or the more opulently hired rifle and shotgun guards. In any event a fine opportunity for a venturesome spirit, one not too easily discouraged in the exercising of almost super-human tact when beset with adversity rarely experienced elsewhere. The conditions above indicated need not be elaborated inasmuch as each engineer will experience these, and other, perplexities early in his Philippines career, and he is hereby forewarned that whatever his solution, right or wrong, he will be liable to criticism from some quarter.

Initial ventures into the several mining districts in the provinces will startlingly convince the newly arrived engineer of the extreme contrasts between almost every condition allied with mining enterprise here as compared with the conditions, practice and procedure, known to him in his previous experiences. Noteworthy in this respect is—for igneous structures of such comparatively recent age—the rather complex geologic features expressed throughout the archipelago. Superficial tropical influence, predominantly the clayey residual products of weathering; the prevailing mantle of jungle vegetation; as also the massive flanks of upheaved, and negligibly eroded, sedimentary schists, limestones, shales, and alluvials serve to expansively obscure igneous formations favorable to the harboring of ore structures. An open mind, one not too prone to correlate our geology with that of Western North America, even though there are many comparable features, will be an invaluable trait, and obviously one compatible with an early ability to examine toward more accurate conclusions.

It is one of the early tribulations suffered by an engineer that he may be delegated to examine a property comprising fifty, or more, claims upon which the only work in progress is the intense cultivation of rice paddies. I should point out that in this relation there is indicated for him an extraordinary aptitude toward applying a geologic training to the problems in hand, as also an ability to satisfactorily report the conditions subject to observation. If, however, he is to investigate a property having some degree of merit he will, as stated, find many of the formation features obscured, and more often than not, very little development—even trenching—will have been done upon exposures of ore.

Not every engineer encounters the situations merely implied in the foregoing. There are many properties here meriting their keen interest and incentive; also there is ample finance for legitimate mining enterprise. Capable engineering, sound

financing, and a willingness among corporate bodies to actually undertake development of favorable prospects intelligently, can not but react to an ever-broadening of Philippine mining; provided, of course, some of the tactics now in vogue do not obtain to the end of driving speculative capital from the financial support of new ventures.

Among engineers arriving to connect with operative positions—either at established mines or prospective developments—there is indicated a great degree of patience in training available labor for the work in hand. In the older established mining districts, employees in both mining and milling work have been trained to satisfactory stages of efficiency. There is no accurate record of the teeth-gnashing, the vituperation, exhortation, or other forms of emotional expression having been vented in the achievement, but nevertheless there is a record of well-trained labor in, and about, the established mines, and patience, combined with a study of the limitations of the inexperienced employee, has been largely responsible.

It is incumbent upon any engineer, for his own sake and the interests of his employers, to make the effort as soon as consistently possible to procure a license in conformity with the Commonwealth's requirements. Obviously his standing is enhanced, and his work has the sanction of the several bureaus concerned with mining, and mining corporations.

Should an engineer be eligible for a license he must ultimately procure it here, and it is unfortunate that companies employing engineers do not all make it a point to acquaint their men with these requirements prior to their leaving the homeland. Under the requirements the several parties vouching for an engineer's integrity and ability should be acquainted with the applicant for at least six months. Much time could be saved if prospective technical employees were provided with all necessary blank forms for their license applications prior to their departure for the Philippines.

Health, and a constitution strong enough to withstand the ever-lurking depredations of dysentery, ptomaine, fevers, ulcers, insect infections, rheumatism and other results of exposure, are a necessary requirement for any engineer here—especially those delegated to remote localities. Parasitic infections affecting the skin, as also the intestinal tract, are a source of perhaps more misery than is generally appreciated. One must be continuously guarding against these maladies which, in the midst of jungle filth, are the forerunners of ulcers and other infections often leading to blood poisoning—even gangrene—all to the individual's remote chance of availing himself of medical assistance in time to save his life.

Water at all times, and places, must be boiled. Native cooks and personal boys often look upon this procedure as "another crazy American idea", therefore it behooves one to personally know the water is boiled. Never drink from a stream—regardless of the crystalline-clear appearance of the water. Jungle people are not versed in the laws of sanitation, and for some reason seem to have developed immunization, to a degree at least, from the several sources of intestinal infection to which you and I would succumb. They, in this respect, are often carriers without experiencing any ill effects.

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Leech bites are difficult to avoid. These, as also skin abrasions, are subject to infection from almost any source of contact, but more often from the ooze of trails which, from ages of travel by man and carabao, are veritable bacteria cultures of almost any skin and blood infection one can name. The free application, and often, of antiseptics to these lesions will minimize probable difficulty from such sources. Any man having traveled in the jungles is able to show many scars of his experience. It is necessary that certain drugs always be a part of the equipment assembled for any remotely located examination, and from experience I should suggest a special case for such items. Unfortunately the standard first aid kits are not suitable for the whole train of afflictions besetting jungle travel; therefore the suggestion for an especially made up case which, *in addition to the regular filler for a first aid case and a medical book*, should be stocked with such items as:—

- 3 gr. Quinine tablets
- Potassium permanganate solution
- Bichloride of Mercury tablets
- Zonite (large)
- Dysentery remedies
- Ichthyol ointment for infections
- Sulphur and lanoline ointment for itch
- 50-50 Calomel and Iodoform ointment for ulcers
- Cafiaspirin tablets

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Gold Production . . .

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MINING COMPANIES	TOTALS		
	1934	1935	1936
Antamok Goldfields.....	P 1,295,436	P 3,013,177	P 5,260,339
Baguio Gold.....	927,056	879,848	1,077,096
Balatoc.....	9,405,363	12,552,833	12,760,406
Benguet Consolidated.....	7,943,427	8,639,667	9,008,052
Benguet Exploration.....	188,014	283,820	274,914
Big Wedge.....	—	77,764	497,863
Cal Horr.....	—	—	1,183,739
Coco Grove.....	—	—	636,232
Demonstration.....	—	934,158	1,473,887
East Mindanao.....	—	—	239,940
Ipo Gold.....	2,139,573	575,039	641,939
Itogon.....	—	2,220,349	2,825,669
I. X. L.....	—	448,767	1,341,249
I. X. L.—Argos.....	**761,779	—	211,315
Masbate Consolidated.....	—	827,952	2,022,302
Salacot.....	—	73,325	413,106
San Mauricio.....	—	—	1,733,888
Suyoc Consolidated.....	—	955,179	1,172,547
Tambis.....	—	—	unavailable
United Paracale.....	—	587,219	1,430,613
Totals.....	P23,491,839	*P32,025,047	P44,205,156

*Gold River—P30,880 (1935 only)
**Panique Mines

Amount Paid as Cash Dividends

	1935	1936
Antamok Goldfields.....	P 1,000,000	P 2,062,500
Baguio Gold.....	None	129,890
Balatoc.....	5,100,000	5,600,000
Benguet Consolidated.....	5,700,000	8,000,000
Benguet Exploration.....	None	50,000
Demonstration.....	None	200,000
Gold Creek.....	None	105,000
Ipo Gold.....	38,825	116,475
Itogon.....	643,864	597,168
Marsman & Company.....	None	940,300
San Mauricio.....	None	320,000
Tambis Placer.....	45,900	None
United Paracale.....	None	275,000
Totals.....	P12,528,589	P18,396,333

January 1937 Gold Production

	January 1936	January 1937
	Value	Value
Antamok Goldfields.....	P 266,666	P 456,552
Baguio Gold Mining.....	89,000	78,622
Balatoc Mining.....	1,076,661	1,142,513
Benguet Consolidated.....	777,759	822,262
Benguet Exploration.....	24,151	27,936
Big Wedge.....	—	68,223
Cal Hor.....	54,889	105,768
Coco Grove.....	—	—
Demonstration.....	16,444	131,123
East Mindanao.....	—	62,000
Gold Creek.....	—	—
Ipo Gold.....	50,347	51,093
Itogon Mining.....	169,785	264,700
I.X.L. Argos Syndicate.....	—	27,844
I.X.L. Mining.....	40,676	155,108
Masbate Consolidated.....	78,224	262,734
Northern Mining.....	—	335
Salacot Mining.....	45,075	20,249
San Mauricio.....	—	241,434
Suyoc Consolidated.....	105,128	98,850
Tambis Gold Dredging.....	—	Unreported
United Paracale.....	103,916	119,726
Total reported.....	P2,998,721	P4,137,072
Total December 1936.....	—	P4,300,594
Total Output 1936.....	—	44,402,654



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This means that the yen (gold standard suspended since December 13, 1931) has depreciated to approximately 56.95% of its former rate of parity with the Pound; but as the Pound itself has depreciated, as above stated, to approximately 59.90% of its former gold standard value, therefore the Japanese yen has depreciated to approximately 34.11% of its former gold standard value, that is, a devaluation or a reduction of value by approximately 65.89%, as judged or measured by the London gold market and the London/Yokohama cross-rate above stated ($56.95\% \times 59.90\% = 34.11\%$).

LONDON on MILAN (Italy); 93-8/16 (that is, 93.1875 Lire per £1);

The Italian gold Lira of 0.07919 fine gramme has a gold standard parity with the new U. S. dollar of \$0.089108 per Lira, and has a gold standard parity with the British Pound of.....(per £1) 92.46467 Lira
London/Milan cross-rate, January 23, 1937. 93.1875 Lira

Difference.....(per £1) 0.72283 Lira

This difference of 0.72283 Lira amounts to but 0.78 of 1% of its parity rate with the Pound of 92.46467 Lire and, in a way, it may be interpreted to mean that the Italian Lira has depreciated to approximately 99.22% of its former relative value with the Pound; but as the Pound itself has depreciated, as above stated, to approximately 59.90% of its former gold standard value, it follows that the Lira has depreciated to approximately 59.43% of its former gold standard value ($99.22\% \times 59.90\% = 59.43\%$), as judged or measured by the London gold market and the London/Milan cross-rate above stated.

All banks and corporations in Italy were ordered on December 8, 1934, to turn over all their foreign credits to the National Exchange Institute, and, along with all private citizens, to declare to the Bank of Italy all foreign or Italian securities held by them even if deposited abroad. The law of 1927 requiring the bank to hold a reserve of 40% was suspended July 22, 1935. The ratio on August 10, 1935, fell to 36.7%.

LONDON on BERLIN (Germany); 12.195 (that is, 12.195 Reichsmarks per £1):

The German gold Reichsmark (Rm.) of 0.3584222 fine gramme has a gold standard parity with the new U. S. dollar of \$0.40335 per Rm., and has a gold standard parity with the British Pound of.....(per £1) 20.42945 Rm.
London/Berlin cross-rate, January 23, 1937 12.195 Rm.

Difference.....(per £1) 8.23445 Rm.

This means that the German Reichsmark, in terms of the Pound sterling, has appreciated to approximately 167.52% of its parity or relative value with the Pound; but as the Pound has depreciated, as above stated, to approximately 59.90% of its former gold standard value, therefore the present value of the Reichsmark is approximately 100.34% of its gold standard value ($167.52\% \times 59.90\% = 100.34\%$). This 0.34% above par cannot, however, be called an appreciation of the Reichsmark but is rather to be considered as a handling charge for the London bankers selling the Reichsmarks.

Officially, the Reichsmark is stable at its old gold standard value. In practice, the Reich has six kinds of marks that cannot be converted into gold, but are (1) "old deposit", (2) "credit-blocked", (3) "note-blocked", (4) "securities-blocked", (5) "registered", and (6) "blocked", or "scrip".

LONDON on MADRID (Spain); 70 nominal (that is, 70 Pesetas per £1, nominal):

The Spanish monetary unit, the gold peseta of 0.2903225 fine gramme has a gold standard parity with the new U. S. dollar of \$0.32669 per peseta, and has a gold standard parity with the Pound of.....(per £1) 25.22154 Pesetas
London/Madrid cross-rate January 23, 1937—nominal, due to Civil War conditions..... 70.00000 Pesetas

Difference.....(per £1) 44.77846 Pesetas

This means that the Spanish peseta, off the gold standard, has, in terms of the British Pound sterling, depreciated to approximately 36.03% of its parity or relative value with the Pound; but as the Pound itself has depreciated, as above stated, to approximately 59.90% of its former gold standard value, it follows that the present value of the peseta, nominally, is about 21.58% (that is, $36.03\% \times 59.90\% = 21.58\%$) of its original gold standard value, that is, a devaluation or depreciation of approximately 78.42%, making the paper currency peseta worth, nominally, U.S.\$0.07050 as compared with its gold standard par value of U.S.\$0.32669.

LONDON on ZURICH (Switzerland); 21.41 (that is, 21.41 Francs per £1):

The Swiss gold Franc of 0.2903225 fine gramme (of identical weight and fineness as the Spanish gold peseta) has a gold standard parity with the new U. S. dollar of \$0.32669 per Swiss Franc, and has a gold standard parity with the British Pound of.....(per £1) 25.22154 Sw. Francs
London/Zurich cross-rate January 23, 1937..... 21.41 Sw. Francs

Difference.....(per £1) 3.81154 Sw. Francs

This means that the Swiss Franc, now off the gold standard, has, in terms of the British Pound sterling, appreciated to 117.80% of its parity or relative value with the Pound; but as the Pound has depreciated to approximately 59.90% of its former gold standard value, it follows that the Swiss Franc has depreciated to approximately 70.56% (that is, $117.80\% \times 59.90\% = 70.56\%$) of its original gold standard value, that is, a devaluation or depreciation of the Swiss paper currency Franc by about 29.44%, as judged or measured by the London bar gold market and the London/Zurich cross-rate as of London, January 23, 1937.

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A doctor's prescription involving bismuth, subnitrate, tincture of opium, etc., for intestinal pain due to ptomaine or kindred poisoning.

Castor oil in addition to your pet laxative

1 pint brandy

2% antiseptic soap

A solution of 1 litre of alcohol containing 1 bichloride of mercury tablet for application to prickly heat, insect bites, and poisonous vegetation rashes.

Flit lotion for mosquitos, flies and nic-nics and if you have any space left fill out the case with your usual medicinal requirements. The case should be waterproof, and could be partitioned to facilitate keeping your drug stock in some degree of order. The occasion when such a case is left behind, or its stock allowed to dwindle, will likely be the time when it is most required.

Field equipment of a personal nature should include a cot, blankets, small pillow, and positively include a mosquito bar. Numerous changes of apparel are necessary, and these should be kept in a waterproof duffle bag. A bit of experience will guide one in selecting a field outfit most suitable to individual requirements. A bolo is handy and should be a part of every field outfit. A side arm, of heavy calibre if at all, may be of occasional use. Such are at once a burden and a source of continual attention—especially automatics—due to rust and corrosion of moving parts. In Mindanao, particularly among the wild tribes, and to a great extent elsewhere, a gun is a coveted article. These people will resort to theft, and some of them to ambush with spears, for the possession of a fire arm. There is only a remote chance of stopping a charging carabao with even a heavy-calibre side arm. They, more often, are the more infuriated by the stinging of bullets and smell of powder. It is the better part of valor to appropriate a near-by tree prior to any demonstration of marksmanship. These docile appearing animals should not be underestimated, inasmuch as they are savage when over-heated, or during periods

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when suckling their young. They have no real love for the color, or odor, of an Americano, and in general they deserve a reasonably wide berth.

Jungle reptiles such as the several species of cobra, pythons, and other snakes throughout the archipelago, are a source of extreme danger. The python, while not venomous, does not hesitate to strike man from ambush with such force as to knock the victim down—and usually out—as a prelude to a few constricting wraps and a meal. Cobras, and other venomous snakes, strike both from the ground and out of overhanging vegetation. One also must use caution in stepping over fallen and decaying logs.

The usual procedure applies for snake bites—cutting open the wound, applying tourniquets, free bleeding, and the injection of permanganate of potash solution. A king cobra bite leaves little hope for the victim; therefore caution is more to be indicated than remedial measures.

Crocodiles infest the rivers of Mindanao, and to some extent elsewhere in the islands. An unknown toll is taken by them of native children, and once they have an appetite for human flesh they become increasingly bold, even though they rarely attack unless with an advantage. Due care must be taken when on river travel, or in traversing swampy places. They drag their victim beneath the water and bury him in the mud, meantime weeping copious tears over the plight of the late lamented. I once criticized the lack of life preservers for an

Asiga River—Lake Mainit launch, and the only satisfaction derived was, "Sir, the life preservers are total useless because of the many crocodiles when you will want to swim."

I could recount unbelievable stories about leech bites, ulcers, and itch; Hongkong foot and the like, and I could fill a page with an outline of remedies, and preventatives for the above—many of which have been gleaned from well-meaning, but otherwise inexperienced individuals with brilliant ideas.

The Southern Island jungle trails should be traveled with close attention to batik signs indicating that a "run" leaving the trail has a set wild boar trap; which, if sprung, may shatter one's legs, or even kill him. Fortunately one early learns to recognize these signs.

The foregoing is not the discourse of a soured engineer. It is more a disclosure concerning a few things learned by experience, and somewhat avoidable with due care. I should be glad if the information, or any part of it, becomes of value to the newly arrived engineer undertaking, particularly the opening up of our unexplored, or otherwise remote, mineral areas. The Philippines are most importantly coming into outstanding mining prominence, with which many of the engineers now here, as also those to come, will be successfully identified. The Islands are a paradise when looked upon in the proper attitude. We have the unquestioned mineral resources, and there is every opportunity here for the ethical engineer who can exercise tact, take care of his health, and stick with the ship until he has survived some of the discouraging features which seem never to end, but toward which there gradually develops a sort of beneficent callousness.

Abra Mining . . .

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conundrum in the Philippine mining field. The situation is extremely complicated, as we have indicated, by the aggressiveness of folk of the region in taking advantage of the eagerness of the

public to risk funds in mining. Igorots are said to be the cleverest folk in the Islands at selling claims, but we would rate the folk of Abra as at least second. As in all districts, it would be best to go by the men back of the project rather

than by what is said of the project itself. Certainly the claims-peddlers of Abra are dragging ten pesos out of Manila to every one taken out by Igorots. That they have been working to great purpose.

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