Fig. 3. Navajo Falls with its "draperies" of mineral deposits.

some of the waterfalls. The blue-green waters ran muddy. Supai residents report that, even after 6 mo, only the section of the creek above Navajo Falls is gradually turning blue-green again. Below the falls, the water still flows murky or cloudy.

DONALD M. BLACK

Box 144, Grand Canyon, Arizona

Bibliography

Unpublished report by Arizona Bureau of Mines, Tucson, lot No. 29988, consisting of three mineral samples from Havasu Canyon, Supai, Ariz., 14 Apr. 1954.

Analytic statements of the U.S. Geological Survey Water Resources Division; water samples from Havasu Creek and tributary streams.

Reports of water samples collected for Atkin and McRae, Los Angeles, Calif., 10 Dec. 1924.

3 February 1955.

Security

The statement of the AAAS board of directors concerning national security [*Science* **120**, 957 (1954)] is fine as far as it goes. A suggestion that we consider the positive, as well as the negative, aspects of "security" is long overdue and altogether good.

It is disappointing, however, to find the board of directors accepting without question the vast majority of the premises that underlie our present practices and ignoring so many of the implications of these assumptions. It may well be that our present security system is the best possible compromise between conflicting necessities and that debate will leave us exactly where we started. It would be better, however, to reach this conclusion as the result of lengthy analysis and vigorous argument rather than simply taking it for granted. We seem to be making decisions of enormous importance on the basis of assumptions that have never been clearly defined or critically examined and with no consideration of alternatives.

There seems to be considerable danger that we shall destroy our traditional sources of strength in an effort to meet the Communists on their own ground. We are so fascinated by the thought of "fighting fire with fire" that we have ignored Hayakawa's comment that "professional firemen seem to prefer water. . . ." Can we outdo the Communists in secrecy, regimentation, and isolation? Is there any proof that we should be stronger if we did?

As long as the facts themselves are secret, it is impossible to say that the secrecy that surrounds so much of our present effort is good or bad. The burden of proof, however, would seem to be on those who advocate it: on the face of it, our measures have not greatly inconvenienced the Communists, but they have certainly hampered us. They not only have enmeshed our scientists and technicians in a web of red tape; they have also made government service repulsive to anyone who objects to working with the Gestapo breathing down the back of his neck. Secrecy gives us a temporary advantage at the cost of a permanent handicap. World War II was not won by secret weapons but by industrial productivity and technologic resourcefulness. If the millions of dollars that have been spent on secret police and loyalty reviews (and all the waste of time and talent that goes with them) had been spent on research, would we not be stronger?

It even seems possible to question the wisdom of the board of directors in affirming agreement with the popular belief that "disloyalty is not to be tolerated anywhere." "Disloyalty" is a too vague and changeable concept to serve as a safe foundation for policy. Increasingly, it seems to mean dissenting beliefs, excessive individuality, or simply lack of orthodoxy. But dissent and unorthodox opinions—even to the point of heresy—are as essential to the health of the body politic as exercise is to the human body. We cannot debate issues of national importance if no one will argue the unpopular side. And action without discussion should have no place in a democracy.

Even if this were not true, we must weigh the cost of tolerating heresy against the cost of extirpating it. (There is no real question of coddling traitors; we have adequate laws and an efficient FBI to control overt acts against the state. All that security regulations and loyalty purges can add is control of opinion and its expression.) To eliminate all "disloyalty"—under any definition—inevitably involves great damage to our traditions and personal relationships and great injustice to many innocent individuals.

Thomas Jefferson suggested that anyone who wished to destroy this Union be allowed to "stand unmolested, as a monument to the impunity with which error can be tolerated when reason is free to correct it." Has this principle served us so poorly in the past that we must reject it now?

The General Electric Company recently ran an ad-

vertisement featuring Steinmetz. It was an appropriate gesture; few men have contributed more to G.E.—and not many have done more for the United States. But the advertisement did not note that Steinmetz would not be eligible for employment at G.E. today, would not even be admitted to the United States; he was an avowed Marxist. One cannot help wondering which culture pattern has the greatest survival value: a capitalism so self-confident that it finds even its severest critics a source of strength, or one so timid that it rejects the help of even its best friends.

WM PALMER TAYLOR
416 Ross Avenue, Hamilton, Ohio

14 March 1955.

Status Emeritus

Status emeritus is becoming a well-known clinical syndrome; it develops at all levels of postacademic and professional life. The psychosomatic impact of retirement is becoming an increasing problem; it is one of the by-product phenomena of an aging population. It has long been recognized in the business and commercial-industrial world where many successful procedures have been adopted to smooth the adjustments of transfer. The pension period of labor and management is becoming less dedicated to the barrenness and futility of senescence. Little consideration has been given, however, to the retirement problems associated with the scientist and those specializing in the various fields of medicine where research may be and frequently is the *vis a tergo* of life itself. Recent communications by A. Silverman [*Science* **120**, 278 (1954)] and H. S. Conrad [*Science* **120**, 581 (1954)] point up the economic and scientific problems, but little emphasis is given to the psychosomatic implications of forced professional retirement.

In clinical medicine it has long been known that the chief hazard in prolonged convalescence from any disabling disease is the psychological deterioration that invariably develops; indeed, this profound depressive mood may outlast the original physical syndrome by many months and sometimes years. In certain instances the psychosomatic impact may result in greater scarring than the initial disease process. This is particularly true among individuals primarily engaged in the creative arts, science, and research medicine; strangely enough, in the world of sports where it might be expected that physical disability would produce considerable psychosomatic impact, there appears to be less reaction. Forced academic retirement at the age of 65 (some institutions retire their operating surgeons at 62) finds many medical men at the very peak of their professional careers; although *status emeritus* carries certain consulting privileges in hospitals and medical schools, the abrupt transition from a very exciting and active type of existence to one of relative boredom presents a critical period for most physicians. Loss of intimate contact with younger individuals, the absence of a teaching stimulus, the disappearance of the prestige factor—all produce an emotiopsychic reaction similar to that seen as a developmental part of physical disability, perhaps to a greater degree.

Although this situation has been more or less imperfectly understood for several decades, there has been a startling increase in the number of retirement psychosomatic casualties since World War II. Many suggestions have been made to ameliorate this problem; Conrad, for example, speaks of the creation and appointment of visiting professors of research while Silverman proposes an "Emeritus House." In 1951, the Valley Forge Heart Institute and Research Center in Pennsylvania started a preliminary program for retired research scientists and physicians.

A practical approach to the problem, insofar as it touches the lives of retired physicians and surgeons, has been initiated by the Caroline Greenwood Fund for Medical Research [*N. Y. Physician* **42**, 10 (1954)]. At the 1953 annual meeting of the fund council, a publishing project to be known as "Medicine Emeritus" was organized. I have had the honor of being appointed editor in chief and will have the assistance of eight associate editors representing the various specialties. An attempt is being made to utilize the experience and know-how of a selected group of specialists now retired from active practice in a series of publications. The pilot test will be issued as *Medicine Emeritus Yearbook of 1955*, and it will contain articles on the management of chronic disabling diseases of the heart, kidneys, lungs, and gastrointestinal tract, as well as articles on arthritis, diabetes, and certain eye conditions associated with the aging process.

Although this publication will be a cooperative economic venture, its greatest contribution to the less happy aspects of *status emeritus* will be the prophylactic outlet of the psychosomatic impact of retirement. If the project is successful, it might well point the way toward similar ventures in the fields of pure science, biology, and chemistry. As an experiment in applied sociology, it warrants the attention of all scientists regardless of their present interests. As the sands of time run out, we all approach the line marked *emeritus*.

ALBERT SALISBURY HYMAN
New York Medical College

1 November 1954.

Thorium Determinations in Manganese Nodules

A knowledge of the geochemical behavior of thorium isotopes in the sedimentary cycle is a prerequisite in using the ionium decay scheme for the measurement of the rates of accumulation of deep-sea sediments. Inasmuch as manganese nodules may reflect mainly hydrogenous precipitation processes (*1*), it was felt of interest to measure their thorium content. Previously, Matthews (*2*) reported evidence for the enrichment