

# INVARIANT

*by John Pierce*

YOU KNOW THE GENERAL FACTS CONCERNING HOMER GREEN, SO I DON'T need to describe him or his surroundings. I knew as much and more, yet it was an odd sensation, which you don't get through reading, actually to dress in that primitive fashion, to go among strange surroundings, and to see him.

The house is no more odd than the pictures. Hemmed in by other twentieth century buildings, it must be indistinguishable from the original structure and its surroundings. To enter it, to tread on rugs, to see chairs covered in cloth with a nap, to see instruments for smoking, to see and hear a primitive radio, even though operating really from a variety of authentic transcriptions, and above all to see an open fire; all this gave me a sense of unreality, prepared though I was. Green sat by the fire in a chair, as we almost invariably find him, with a dog at his feet. He is per-haps the most valuable man in the world, I thought. But I could not shake off the sense of unreality concerning the substantial surroundings. He, too, seemed unreal, and I pitied him.

The sense of unreality continued through the form of self-introduction. How many have there been? I could, of course, examine the records.

"I'm Carew, from the Institute," I said. "We haven't met before, but they told me you'd be glad to see me."

Green rose and extended his hand. I took it obediently, making the unfamiliar gesture.

"Glad to see you," he said. "I've been dozing here. It's a little of a shock, the treatment, and I thought I'd rest a few days. I hope it's really perma-nent.

"Won't you sit down?" he added.

We seated ourselves before the fire. The dog, which had risen, lay down, pressed against his master's feet.

"I suppose you want to test my reactions?" Green asked.

"Later," I replied. "There's no hurry. And it's so very comfortable here."

Green was easily distracted. He relaxed, staring at the fire. This was an opportunity, and I spoke in a somewhat purposeful voice.

"It seems more a time for politics, here," I said. "What the Swede in-tends, and what the French—"

"Drench our thoughts in mirth—" Green replied.

I had thought from the records the quotation would have some effect.

"But one doesn't leave politics to drench his thoughts in mirth," he continued. "One studies them—"

I won't go into the conversation. You've seen it in Appendix A of my thesis, "An Aspect of Twentieth Century Politics and Speech." It was brief, as you know. I had been very lucky to get to see Green. I was more lucky to hit on the right thread directly. Somehow, it had never occurred to me before that twentieth century politicians had meant, or had thought that they meant, what they said; that indeed, they had in their own minds attached a sense of meaning or relevancy to what seem to us meaningless or irrelevant phrases. It's hard to explain so foreign an idea; perhaps an example would help.

For instance, would you believe that a man accused of making a certain statement would seriously reply, "I'm not in the habit of making such statements?" Would you believe that this might even mean that he had not made the statement? Or would you further believe that even if he had made the statement, this would seem to him to classify it as some sort of special instance, and his reply as not truly evasive? I think these con-jectures plausible, that is, when I struggle to immerse myself in the twen-tieth century. But I would never have dreamed them before talking with Green. How truly invaluable the man is!

I have said that the conversation recorded in Appendix A is very short. There was no need to continue along political lines after I had grasped the basic idea. Twentieth century records are much more complete than Green's memory, and that itself has been thoroughly catalogued. It is not the dry bones of information, but the personal contact, the infinite varia-tion in combinations, the stimulation of the warm

human touch, that are helpful and suggestive.

So I was with Green, and most of a morning was still before me. You know that he is given meal times free, and only one appointment between meals, so that there will be no overlapping. I was grateful to the man, and sympathetic, and I was somewhat upset in his presence. I wanted to talk to him of the thing nearest his heart. There was no reason I shouldn't. I've recorded the rest of the conversation, but not published it. It's not new. Perhaps it is trivial, but it means a great deal to me. Maybe it's only my very personal memory of it. But I thought you might like to know.

"What led to your discovery?" I asked him.

"Salamanders," he replied without hesitation. "Salamanders." The account I got of his perfect regeneration experiments was, of course, the published story. How many thousands of times has it been told? Yet, I swear I detected variations from the records. How nearly infinite the possible combinations are! But the chief points came in the usual order. How the regeneration of limbs in salamanders led to the idea of perfect regeneration of human parts. How, say, a cut heals, leaving not a scar, but a perfect replica of the damaged tissue. How in normal metabolism tissue can be replaced not imperfectly, as in an aging organ-ism, but perfectly, indefinitely. You've seen it in animals, in compulsory biology. The chick whose metabolism replaces its tissues, but always in an exact, invariant form, never changing. It's disturbing to think of it in a man. Green looked so young, as young as I. Since the twentieth century—

When Green had concluded his description, including that of his own inoculation in the evening, he ventured to prophesy.

"I feel confident," he said, "that it will work, indefinitely."

"It does work, Dr. Green," I assured him. "Indefinitely."

"We mustn't be premature," he said. "After all, a short time—"

"Do you recall the date, Dr. Green?" I asked.

"September 11th," he said. "1943, if you want that, too."

"Dr. Green, today is August 4, 2170," I told him earnestly.

"Look here," Green said. "If it were, I wouldn't be here dressed this way, and you wouldn't be there dressed that way."

The impasse could have continued indefinitely. I took my communi-cator from my pocket and showed it to him. He watched with growing wonder and delight as I demonstrated, finally with projection, binaural and stereo. Not simple, but exactly the sort of electronic development which a man of Green's era associated with the future. Green seemed to have lost all thought of the conversation which had led to my pro-duction of the communicator.

"Dr. Green," I said, "the year is 2170. This is the twenty-second cen-tury."

He looked at me baffled, but this time not with disbelief. A strange sort of terror was spread over his features.

"An accident?" he asked. "My memory?"

"There has been no accident," I said. "Your memory is intact, as far as it goes. Listen to me. Concentrate."

Then I told him, simply and briefly, so that his thought processes would not lag. As I spoke to him he stared at me apprehensively, his mind ap-parently racing. This is what I said:

"Your experiment succeeded, beyond anything you had reason to hope. Your tissues took on the ability to reform themselves in exactly the same pattern year after year. Their form became invariant.

"Photographs and careful measurements show this, from year to year, yes, from century to century. You are just as you were over two hundred years ago.

"Your life has not been devoid of accident. Minor, even major, wounds have left no trace in healing. Your tissues are invariant.

"Your brain is invariant, too; that is, as far as the cell patterns are con-cerned. A brain may be likened to an electrical network. Memory is the network, the coils and condensers, and their interconnections. Conscious thought is the pattern of voltages across them and currents flowing through them. The pattern is complicated, but transitory—transient. Memory is changing the network of the brain, affecting all

subsequent thoughts, or patterns in the network. The network of your brain never changes. It is invariant.

“Or thought is like the complicated operation of the relays and switches of a telephone exchange of your century, but memory is the interconnections of elements. The interconnections on other people’s brains change in the process of thought, breaking down, building up, giving them new memories. The pattern of connections in your brain never changes. It is invariant.

“Other people can adapt themselves to new surroundings, learning where objects of necessity are, the pattern of rooms, adapting themselves unconsciously, without friction. You cannot; your brain is invariant. Your habits are keyed to a house, your house as it was the day before you treated yourself. It has been preserved, replaced through two hundred years so that you could live without friction. In it, you live, day after day, the day after the treatment which made your brain invariant.

“Do not think you give no return for this care. You are perhaps the most valuable man in the world. Morning, afternoon, evening; you have three appointments a day, when the lucky few who are judged to merit or need your help are allowed to seek it.

“I am a student of history. I came to see the twentieth century through the eyes of an intelligent man of that century. You are a very intelligent, a brilliant man. Your mind has been analyzed in a detail greater than that of any other. Few brains are better. I came to learn from this powerful observant brain what politics meant to a man of your period. I learned from a fresh new source, your brain, which is not overlaid, not changed by the intervening years, but is just as it was in 1943.

“But I am not very important. Important workers: psychologists, come to see you. They ask you questions, then repeat them a little differently, and observe your reactions. One experiment is not vitiated by your memory of an earlier experiment. When your train of thought is interrupted, it leaves no memory behind. Your brain remains invariant. And these men, who otherwise could draw only general conclusions from simple experiments on multitudes of different, differently constituted and differently prepared individuals, can observe undisputable differences of response due to the slightest changes in stimulus. Some of these men have driven you to a frenzy. You do not go mad. Your brain cannot change; it is invariant.

“You are so valuable it seems that the world could scarcely progress without your invariant brain. And yet, we have not asked another to do as you did. With animals, yes. Your dog is an example. What you did was willingly, and you did not know the consequences. You did the world this greatest service unknowingly. But we know.”

Green’s head had sunk to his chest. His face was troubled, and he seemed to seek solace in the warmth of the fire. The dog at his feet stirred, and he looked down, a sudden smile on his face. I knew that his train of thought had been interrupted. The transients had died from his brain. Our whole meeting was gone from his processes of thought.

I rose and stole away before he looked up. Perhaps I wasted the remaining hour of the morning.

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